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Paper and Paper Board Census for 1931

According to a Preliminary Tabulation of Data Collected in the Census of Manufacturers, the Production of Paper and Board Amounted to 9,381,850 Tons Valued at $631,106,209 As Compared With 11,140,235 Tons Valued at $903,301,140 Reported for 1929 the Last Preceding Biennial Census Year

WASHINGTON, D. C., December 16, 1932—The Bureau of the Census announces that, according to a preliminary tabulation of data collected in the Census of Manufacturers taken in 1932, the production of paper and paper board in the United States in 1931 by establishments engaged primarily in the manufacture of these products amounted to 9,381,850 tons, valued at $631,106,209 (at f.o.b. factory prices, a decrease of 15.8 per cent in quantity and of 30.1 per cent in value as compared with 11,140,235 tons, valued at $903,301,140, reported for 1929, the last preceding biennial census year. The total for 1931 is made up as follows: Paper and paper board produced for sale, 6,939,706 tons, valued at $498,202,661; produced and transferred to other plants of the same companies, 1,259,025 tons, $65,118,228; produced and consumed in the same plants in the manufacture of converted paper products, 1,183,119 tons, $67,785,320. The total reported production of paper and paper board in 1930 was 10,169,140 tons (value not called for in questionnaire).

The 1931 production was distributed by kind and quantity as follows: Standard news print, 1,203,862 tons; hanging paper, 85,375 tons; catalogue paper, 89,382 tons; poster, novel, news-tablet, lining paper, etc., 135,924 tons; book paper uncoated, 1,208,674 tons; cover paper, 23,520 tons; writing paper, 487,598 tons; wrapping paper, 1,401,667 tons; paper board, 3,847,823 tons; tissue paper, 394,623 tons; absorbent paper, 76,592 tons; building paper, 395,359 tons; other paper, 31,451 tons.

The statistics for 1931 and 1929 are summarized in Table 1; Table 2 gives condensed production statistics for 1931, 1930, and 1929; Table 3 presents detailed production statistics for 1931. All figures for 1931 are preliminary and subject to revision.

TABLE 1—SUMMARY FOR THE INDUSTRY: 1931 AND 1929

	1931	1929	Per cent of decrease
Number of establishments	650	685	— 5.1
Wage earners (average for the year) [1]	87,683	103,320	—15.1
Wages [2]	$103,851,000	$140,398,374	—26.0
Cost of materials, fuel, and purchased electric energy [3]	383,420,390	574,607,978	—33.3
Products, total value [3]	684,971,197	967,186,026	—29.2
Paper and paper board	[3] $563,329,889	[3] $817,024,663	—31.1
Made for sale	$498,202,661	$715,145,798	—30.3
Made and transferred to other plants of same company	65,118,228	101,878,865	—36.1
Products other than paper and paperboard	121,650,308	150,161,363	—19.0
Value added by manufacture [4]	301,550,807	392,578,048	—23.2

[1] Not including salaried officers and employees. The average number of wage earners is based on the numbers reported for the several months of the year. This average probably exceeds somewhat the number that would have been required for the work performed if all had been continuously employed throughout the year, because of the fact that manufacturers report the number employed on or about the 15th day of each month, as shown by the pay rolls, usually taking no account of the possibility that some or all of the wage earners may have been on part time or for some other reason may not actually have worked the entire month. Thus it becomes necessary to give equal weight to full-time and part-time wage earners in calculating the average, and therefore the average may overstate somewhat the amount of full-time employment. For this reason the quotient obtained by dividing the amount of wages by the average number of wage earners can not be accepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1931 and 1929, the possibility that the proportion of part-time employment was larger in one year than in the other should be taken into account.

[2] Manufacturers' profits can not be calculated from the census figures because no data are collected from certain expense items, such as salaries, interest on investment, rent, depreciation, taxes, insurance, and advertising.

[3] In addition, paper and paperboard to the value of $67,785,320 for 1931 and $86,276,477 for 1929 were produced and consumed in the same plants in the manufacture of converted paper products.

[4] Value of products less cost of materials, fuel, and purchased electric energy.

TABLE 2—PAPER AND PAPERBOARD—PRODUCTION, BY CLASS AND QUANTITY: 1931, 1930, and 1929

[A census of the paper industry is now taken annually. For the odd-numbered years the same class of data are collected as for other manufacturing industries covered by the biennial census but the canvass for the even-numbered years is restricted to the collection of condensed data on production and on paper-making machines in use]

Class	Quantity (tons, 2,000 pounds) 1931	1930	1929
Total	9,381,850	10,169,140	11,140,235
News print, standard, in rolls and in sheets	1,203,862	1,226,086	1,409,169
Hanging paper	85,375	106,427	101,002
Catalogue paper	89,382	114,588	111,771
Book paper, uncoated	1,208,674	1,389,500	1,497,912
Cover paper	23,520	40,059	28,072
Writing paper	487,598	574,681	607,590
Wrapping paper, total	1,401,667	1,580,489	1,605,783
Sulphite	199,780	[1] 353,227	215,777
Kraft	867,743	865,444	[2] 846,468
Other	334,144	361,818	543,538
Tissue paper	394,623	362,355	387,811
Absorbent paper	76,592	81,813	90,800
Building paper	395,359	468,730	659,178
Poster, novel, news-tablet, lining, etc.	135,924		150,649
Other paper	31,451	163,696	39,311
Paperboard, total	3,847,823	4,060,716	4,451,187
Container board	1,903,792	1,914,633	2,255,537
Folding box board	995,710	1,012,736	991,285
Set-up box board	562,176	653,177	599,665
Building board	114,054	123,589	131,969
Binders' board	32,703	47,669	64,165
Cardboard	74,102	73,491	47,233
Leatherboard	26,715	17,754	24,228
Pressboard	4,000	3,568	11,901
Other	224,571	214,099	325,204

[1] Reported as "Sulphite, manilas, etc." Not comparable with figures for 1929 and 1931.

[2] Includes data for 134,234 tons of "sulphate, for bags."

(Continued on page 40)

Demand for Paper Light In Philadelphia

Special Holiday Business In Fine Paper Section Falls Off, With Exception of Rush Orders for Small Amounts—Coarse Paper Division Slightly More Active, Although Price Situation Continues Unsatisfactory—Paper Stock Market Stagnant

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 19, 1932—Just another week of slight expectation, slighter realization, but no trace of despair. But the fact that it was just another week towards the proverbial turning point—the first of the year—is looked on with favor as advancing the time when real certainty will displace existing doubt. And there were manifestations in meetings held during the week, both of the Paper Association and of the Paper Men's Credit Association, which most distinctly sounded notes of complete confidence.

In the fine paper division there was the expected falling off of the special holiday business, although belated, and rush orders are still making things active, despite the small amounts involved in individual orders. In the coarse paper division, trade was a little more active but unfortunately not healthfully so because the increased activity was due more to taking business regardless of price, than to a stimulated demand.

Virtual stagnation continues in the paper stock market for all the cheaper grades, but there is real satisfaction among the packers that there has been no recession of quotations on the better grade like soft whites and allied lines. The fact that in these grades, prices have held so steadily a market generally soft gives confidence for the future.

Prices have held steadily because of the limited supplies which are coming in. These, however, came in just about enough to supply demand. There is no disposition on the part of packers to hold back stock in expectation of better prices and so with a market completely cleaned up, either a decrease in supply or increase in demand must result in firmer prices, at least, perhaps, even an increase.

The Paper House Credit Men's meeting on Tuesday last in the rooms of the Typothetae of Philadelphia went through what is pictured as one of the most successful and enthusiastic sessions of the year. Present were representatives of fifteen of the sixteen firms which are cooperating in this Bureau.

In the face of complaint generally made that collections are very slow, there was outstanding the fact that losses through actual failures have been very slight; in fact, whether due to the vigilance exercised by the credit men or to trade conditions, Philadelphia printerdom has been freer of serious failure and losses to paper houses and financial embarrassment of their patrons than in certainly a majority of industrial lines.

In all, Philadelphia failures of printers and losses to paper houses during the past year can be counted on the fingers of one hand. Less printers have had to go under than banks and other financial institutions. It is moreover true that while primarily the vigilance of the paper house credit men has been exercised for the protection of these houses, none the less their operation has been conducive to a sounder condition among printers because while credits freely had been extended to sound concerns, it has been restricted or put on a pay cash basis, to those who with free credit would probably have demoralized by price cutting those who legitimately conduct their business.

Paper Trade Association Meets

On Wednesday, the Paper Trade Association of Philadelphia met at luncheon in the Bourse, there being present representatives of Simon Walter, J. L. N. Smythe Company, Raymond McNutt Company, the Schuylkill Paper Company, the Howarth Paper Company, the D. L. Ward Company, the Garrett-Buchanan Company, Walter-Willcox-Furling and the Whiting-Patterson Company. The trade discussion was not critical or destructive but constructive. It revolved largely about the question of overhead costs in warehousing particularly, but incidentally of selling and of office management. Quite a wide discrepancy seemed to exist in opinion as to these cost percentages, and it was decided to make a more thorough study of them for the purpose of reporting back at the regular meeting in January. A nominating committee consisting of Messrs. Willcox, Walter and Balch was appointed to report at the January meeting at which time election will take place. Present officers of the association are: President, Wm. A. Lentz, of the D. L. Ward Company; Vice President, Butler Smythe, of the J. L. N. Smythe Company; Secretary, Edward A. Keller, Garrett-Buchanan Company; and Treasurer, William Christine. Precedent has been to have its officers serve two terms and so the probabilities are that present officers will be renominated unless there is declination to serve.

John F. Levick Dead

Trade circles were shocked to learn of the death on Friday of last week of John F. Levick, for approximately two-score of years connected with the Thos. W. Price Company, and representing it in the printing and stationery trades of both this city and of Camden across the Delaware. Mr. Levick was most widely known as John, and was held in high regard. He was a member of the Masonic fraternity. While in failing health for quite a long period of time he was active in the trade until shortly before his regretted death.

Ben Franklin Memorial

More than a score of leaders in the Graphic Arts Industry in the United States conferred on Friday evening with officials of the Franklin Institute on the installation of a Graphic Arts Section in the Benjamin Franklin Memorial and the Franklin Institute on the Parkway at Logan Circle. According to Dr. Howard McClenahan of the Franklin Institute and Director of its new museum, who presided, the Graphic Arts section will occupy the northeastern portion of the building looking out towards the Parkway and Twentieth street, and in it will be housed historical and present-day machinery used in paper making, printing, binding, engraving, illustrating, type casting and allied activities.

Paper making processes, from pulp to finished product, will be demonstrated in a space 132 by 42 feet, located in the basement. Close by also on the ground floor in a room 890 by 42 feet there is to be installed type setting machinery presses, stereotyping apparatus, etc. Entrance

to the Graphic Arts section will be through a room exactly reproducing a shop of Benjamin Franklin, Master Printer, and in the shop will be the very stone on which he mixed his ink and the very form he used in makeup. There will be provided space for 450,000 volumes in a special library on the history and processes of the Graphic Arts, and Thomas R. Jones, president of the Type Founders Company of Jersey City, and H. L. Bullen, its librarian, pointed out in addresses that Philadelphia is now resuming its old time leadership.

"Clearing House of Information" was the succinct description of the section by R. G. Macdonald, representing the Technical Association of the Pulp and Paper Industry. R. S. Madden, Holyoke, Mass., representing the American Paper and Pulp Association, suggested the appropriateness of installing a model of the Rittenhouse Paper Mill, first in the country, illustrated, by the way, on the front cover of the December issue of the *Real Estate Magazine*.

Grillet Collins, president of Dill and Collins praised the Institute's plan of installing paper making equipment which actually will make before the eyes of visitors papers which the institution subsequently will use. Among others who promised cooperation were Norbert A. Considine, The Paper House of Pennsylvania; Mathias D. Maull, Dill & Collins; and G. W. Ward of the D. L. Ward Company.

Paper and Bag Banquet Planned

The Paper and Bag Institute of Philadelphia held its regular meeting on Wednesday at the Elks Clubhouse, and tentative plans were made to hold their first annual banquet on March 1, 1933. A representative attendance was present and all manifested great enthusiasm. Committees will be appointed next week, although already members have been actively at work on the details of the program.

Paper Men On Black River Board

BEAVER FALLS, N. Y., December 19, 1932—Prominent paper mill men of Northern New York were appointed this week by Governor Roosevelt to serve as members of the Black River Regulating District Board. Harry P. Gould, president of the Gould Paper Company, of Lyons Falls, was appointed to fill the vacancy caused by the recent death of John N. Carlisle. Among the others named were J. Victor Baron, vice-president of the Sherman Paper Company, who succeeds himself and Mayor John B. Harris, of Watertown, who takes the place vacated by Harry S. Lewis. The latter is head of J. P. Lewis & Co., of this village, and it is understood that he was not desirous of re-appointment because of pressure of other duties. The board has jurisdiction over control of several reservoirs in this section which supply water power to a number of the large mills.

World's Fair Paper Exhibit Planned

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 19, 1932—Wisconsin paper manufacturers are taking an interest in the possibility of a paper making and trade exhibit at the Chicago World's Fair, or Century of Progress in 1933. John W. Gorby, of the Allied Science and Industry Division, has been conferring with a number of mills and is receiving promises of co-operation because of the belief that paper should have its place among the displays. It represents the seventh basic industry of the United States, doing a billion dollar annual business. Various trade organizations of the paper industry will be asked to support the exhibit plan which has been drawn up.

Spaulding Co. Is Reorganized

PORTLAND, Ore., Dec. 17, 1932—Reorganization of the Spaulding Pulp and Paper Company at Newberg has been effected, and the company now owes nothing except a $300,000 bond issue floated for reorganization purposes, according to announcement of E. F. Emery and O. M. Allison, members of the board of directors.

"We are in position now to take advantage of any favorable break in the market," said the two directors in a statement. "Affairs of the company are in the best shape they have been in months."

Six per cent five-year bonds were authorized in the amount of $350,000, with Ladd & Bush of Salem as trustees. Of this issue, $250,000 were made income bonds and have been taken by the creditors. The remaining $100,000 is in first mortgage gold bonds, $50,000 worth being taken by stockholders of the company and $50,000 being left in the treasury to provide working capital.

"Last January, when the mill finally closed because of financial troubles, we were told by bond experts that it would be impossible to put over a $300,000 issue at this time," Mr. Emery said. "But we've done it."

Mr. Emery and Mr. Allison handled the transaction, with the aid of Fentress Hill, Portland, who is chairman of a board of voting trustees to which 51 per cent of the stock has been assigned. Membership of this board is as follows: Mr Hill, chairman; Mr. Allison, secretary; C. K. Spaulding, Salem; Mr. Emery, Portland; J. C. Compton, McMinnville; R. J. Moore, Newberg; H. R. Crawford, Salem; H. B. Van Duzer and R. V. Woodin, Portland. The board of directors is composed of the first seven named, J. C. Compton being president, E. F. Emery vice-president, and O. M. Allison secretary-treasurer.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 19, 1932—The Hersey Paper Company, of Medford, Mass., has bought from the United States Rubber Company three brick factory buildings, containing 30,000 square feet of floor space, part of the Boston Rubber Shoe plant on Pleasant street, Melrose, near the Malden line. The purchasing concern has already started to occupy the buildings. The fabrication process of the waterproof paper products made by this company is well under way. In addition to the buildings are 48,000 square feet of land. The property is valued for tax purposes at approximately $40,000.

Carter, Rice & Co., Corp., has opened a sales office at 144 Westminster street, Providence, R. I. James T. McGowan, who has been resident representative of the company for a number of years, is in charge of the office.

John Carter & Co., Inc., is receiving a good volume of orders for Artcote Graphic gold and silver papers, manufactured by Artcote Papers, Inc., Irvington, N. J. The John Carter concern is mailing samples of its 1933 line of town report book and cover papers to its New England customers.

E. D. Reynolds has joined the selling force of Poinier-Carmer Company. Mr. Reynolds has been associated with the New England office of the United Paperboard Company for a number of years, part of the time as manager.

Percey D. Wells has added to his papers a new line, Partworth Bond, made in the heart of the White Mountains by the Parker Young Company, Lincoln, N. H. This line is a sulphite bond, watermarked.

J. Fred Crane, sales manager of the box board division of the Container Corporation of America, Manayunk, Philadelphia, spent a day here last week.

Paper Demand Falls Off Materially In Ontario

Wholesale Paper Business for Year Practically Closed, Aside From Stray Orders for Small Amounts—Some Mills Will Close Down During Holidays for Repairs, Etc.—Paper Box Consumption Declines Sharply, Reacting Against Box Board Market

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 19, 1932—With the near approach of Christmas the volume of wholesale paper sales has fallen off materially. There has been a fair amount of pre-Christmas trade in certain lines, considering the condition of trade generally, but it was a great deal lighter than in previous years. What buying there has been for some months past has been in small lots and while paper merchants are looking forward to better business at the turn of the year they are not over confident as to the possible trend when the Christmas and New Year holidays are over.

The extent to which the paper trade will pick up will be determined by general business conditions and most business and industrial leaders are hopeful, while making no definite prognostications. In the meantime it is conceded that the wholesale paper business for the year is over, aside from a few orders for sorting up purposes, and paper salesmen for the most part are now in off the road.

The same quiet conditions exist in paper manufacturing. Some of the mills will be closed down over Christmas-New Year's week—some to make repairs and others to cut down overhead a bit. Many of the mills, both in the fine paper and coarse paper classes, have been working only five days a week and even under those conditions there has been a good deal of difficulty in keeping the plants operating, particularly of late months.

Buying Up to Christmas

In previous years there was always more or less buying right up to Christmas but this year the seasonal slump set in earlier than usual and the testimony of most of the plants is business just now has temporarily dropped away close to the vanishing point. Neither the printers nor the jobbing houses are buying anything at the moment, largely with the object of keeping down inventories. It is hoped, however, that consuming sources will be in the market again early in the new year and that some business slack will be taken up in January.

Just now and for some months past the paper box industry in Canada has been operating at less than fifty per cent capacity, although in respect to the corrugated box division the ratio may be said to be slightly over fifty per cent. While practicing economy in the matter of paper boxes the retail stores in the big Canadian centres materially cut down their appropriations for gift boxes this season which meant lightened trade for the paper box manufacturers.

It was noticeable in the big department stores that customers were queried as to whether or not they wanted their purchases done up in gift boxes, whereas in previous years everything went out in containers. Furthermore, the quality of the boxes used by the stores this year was vastly inferior to that of last year. Cheap boxes were in general use and the public was not getting these unless they asked for them.

This all meant that the expected Christmas trade for the paper box maker did not materialize this year, while the volume of business was also affected by the many articles in the drug stores which went over the counter to the purchasers wrapped in kraft paper instead of being enclosed in neat boxes as heretofore. All this, of course, reacted against the box board business which has been in rather bad shape for several months past.

Bondholders Meet in Toronto

Bondholders of Lake St. John Power and Paper Company, Ltd., met in Toronto a few days ago when the resolution appointing a committee to co-operate with the National Trust Company, the trustee, to investigate the company's affairs and to make suggestions looking toward reorganization, was passed by a large majority, only $2,500 of the $2,945,500 vote being opposed. The committee consists of G. A. Dobbie, Galt; H. Horsfall, Toronto; H. R. Jackman, Toronto; W. S. Lighthall, Montreal; D. H. Macdougall, Toronto; John Stadler, Montreal, and A. F. White, Toronto. The bondholders' committee and the debenture holders' committee have organized, D. H. McDougall, chairman of the board of Rogers-Majestic Corporation, having been appointed chairman of the bondholders' committee, and A. Stewart McNichols, president of the Quebec Pulp and Paper Corporation, having been appointed chairman of the debenture holders' committee. The two committees are to hold a joint meeting in Montreal later in the month.

Activity in Pulpwood Operations

A trip through Northern Ontario reveals considerable activity in pulpwood cutting operations. From Port Arthur and Fort William it was learned that Don Clark has eight pulpwood camps operating near Lake Helen, south of Hogarth, employing about 225 men; Nauvi Faurie, one pulpwood camp at Navilus, 40 men; Thomas Falls, two camps near Nipigon, 80 men; G. Legrew, two pulpwood camps at Shebandawan, 90 men; Fred Brown, one pulpwood camp at Pigeon River, 40 men; Provincial Paper Company, Ltd., three pulpwood camps at Hurkett, 200 men; James Stewart, one camp at Kashabowie, 40 men; C. A. Gardiner, two pulpwood camps at Gurney Station, east of Nipigon, 100 men.

The Pigeon Timber Company, who have a contract for 40,000 cords of pulpwood for the Great Lakes Paper Company, Fort William, are operating seven camps at Onion Lake, north of Port Arthur and at St. Ignace Island, south of Nipigon. In the Fort Frances district, Holmes Bros. and W. Westergard are operating with four camps and employing 100 men. In the Sudbury district Bert Currie is conducting one camp at the township of Mowat, employing 20 men; Canada Tie and Lumber Company in Ferrie and McKenzie townships, two camps with 100 men; Domic Tie and Timber Company at Fire River, 35 men; Acme Timber Company, Folyet, three camps with 150 men; John Campbell & Sons, three camps at Ruel, with 75 men.

In the Sault Ste. Marie district two companies are operating. The Eastern Lumber Company have seven camps, giving employment to about 400 men at Ranger Lake. These camps are being manned by jobbers. In the Cochrane-Timmins district the Spruce Falls Power and Paper Company are operating four camps, employing approximately 400 men; the Abitibi Power and Paper Company are conducting camps at Smooth Rock Falls with about

175 men; the Feldman Lumber Company, of Schumacher, two camps with 150 men in Hassard township; H. F. Sedigren, one camp with 15 men in Teck township; Silver & Sharp a 30-man camp in Gauthier township; the Abitibi Power and Paper Company, one camp on their Iroquois Falls limits with 100 men; 100-man camp in Bartlett township operated by the Hawk Lumber Company.

Pulpwood and tie-cutting operations in the Thunder Bay district woods will be under way on a scale larger than last year, providing several months' work to hundreds of skilled bushmen, it was announced by Frank Spence, M. L. A. for Fort William. Mr. Spence declared that Russel McKechnie, timber mill operator, will open camps this week near Round Lake, southwest of Fort William, and employ between 125 and 150 men throughout the winter months. Several other lakehead pulpwood operators soon will resume their work, he said, and on the whole a fairly busy period of woods work may be looked for, he said.

Notes and Jottings of the Trade

Employees, past and present, of the Canadian Paperboard Company, which recently closed down its Toronto plant, held a farewell party a few days ago in Toronto under the chairmanship of S. R. Armstrong. Over a hundred people were present and the event proved an enjoyable one.

Fred Hunt, of Toronto sales staff of the Howard Smith Paper Mills, has been transferred to the Canada Paper Wholesale, Ltd., division of the Howard Smith organization and will operate from the same office in Toronto as heretofore.

Recent visitors to Paper Sales, Ltd., King street West, Toronto, were S. M. Longaker, of Nashua Gummed and Coated Paper Company, Syracuse, N. Y., and Robert Brown, of the Kimberly-Clark Corporation, Neenah, Wis.

Fred. W. Fisher, of the Fisher Paper Box Company, Toronto, was installed as Master of General Mercer Lodge, when he was made the subject of a presentation by paper box manufacturers in the city who are members of the Masonic body.

Gerald T. Shipman Company, Ltd., Front street, Toronto, have announced that they will be in folding box board production early in the new year, which will complete their lines from patent coated to chip board. The mill is at Thorold, Ont.

McLaurin-Jones Issue Sample Book

The McLaurin-Jones Company, Brookfield, Mass., has just issued what is believed to be the most complete sample book on gummed paper put out up to this time. Among other new items, are shown the company's lines of Vivids and Pastel coated gummed papers. There is a distinctive demand in some directions for a bright, outstanding colored label and Vivids meet this demand. There is also a call for a very high grade coated gummed label in Pastel shades and it is with this thought in mind that the company brought out its Pastel coated papers. The book is indexed so that it is very easy to find the various qualities and colors.

United Mfg. Co. Runs Overtime

[FROM OUR REGULAR CORRESPONDENT]

SPRINGFIELD, Mass., December 17, 1932—The United Manufacturing Company of Brightwood has been obliged to run overtime in the work on new glazed and fancy papers. Several lines new to the market have been offered successfully to the trade the past few months.

Gatineau Power Co. Shows Increase

Gatineau Power Company and subsidiary companies report increases in both gross and net earnings in the third quarter of this year over the corresponding quarter of last year. Consolidated total gross revenue including other income was $2,224,440 compared with $2,176,053 in the third quarter of 1931; net revenue including that available for interest and depreciation was $1,939,540 against $1,857,744; and balance added to surplus was $456,648 compared with $334,993.

In the twelve months ended September 30, consolidated net revenue available for interest and depreciation was $8,363,907, or two and one third times the interest on the Company's first mortgage 5 per cent gold bonds and prior liens. After deducting this interest the balance of earnings was $4,818,605, or four and three-tenths times the interest on the 6 per cent gold debentures of the company.

Comparative consolidated earnings statements are as follows:

	Quarter Ended September 30	
	1932	1931
Gross revenue, including other income	$2,274,917	$2,176,053
Loss on exchange	50,977	.....
Profit on bonds and debentures redeemed	500	.....
Total gross revenue, including other income	2,224,400	2,176,053
Net before interest, depreciation, etc.	1,939,540	1,857,744
Interest on first mortgage bonds and prior liens	885,571	889,904
Balance	1,053,969	967,840
Interest on debentures	277,266	281,955
Other interest, amort. of disc., div. on pref. stock of sub.	173,038	165,358
Depreciation, and amortization of storage works	147,017	185,534
Balance added to surplus	456,648	334,993
	1932	1931
	Twelve Months Ended September 30	
Gross revenue, including other income	$9,203,914	$8,392,784
Profit on exchange	317,754	.....
Profit on bonds and debentures redeemed	107,923	31,326
Total gross revenue, including other income	9,629,591	8,424,110
Net before interest, depreciation, etc.	8,363,907	7,318,681
Interest on first mortgage bonds and prior liens	3,545,302	3,335,324
Balance	4,818,605	3,983,356
Interest on debentures	1,117,731	1,135,986
Other interest, amort. of disc., div. on pref. stock of sub.	701,539	675,599
Depreciation, and amortization of storage works	583,514	723,783
Balance added to surplus	2,415,821	1,447,988

Commencing the first of July the small profit arising through premium on United States funds ceased and there has been a loss averaging about $17,000 a month, representing the cost of acquiring the balance of United States funds needed for the payment of interest and sinking funds.

Charles Hall Hooker Dead

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 19, 1932—Charles Hall Hooker, 85, at one time treasurer of the Jessup & Laffin Paper Company, Westfield, Mass., died December 9 at his residence, 19 Rockland street, Wellesley Hills, Mass. Mr. Hooker was a close friend of Gamaliel Bradford, and was for more than fifty years connected with the Kidder, Peabody Company. He was born in Greenfield, Mass., July 3, 1847, the son of Henry H. and Sarah Hall Hooker. His family removed to Westfield when he was a boy. His father for fifty years was cashier of the Westfield High School and Williston Academy and was graduated from Williams College in 1871. He went to Paris with his classmate, Harry Keen, and was connected for two years with the Paris office of Bolles Brothers, investment bankers. Later he became treasurer of the Jessup & Laffin Paper Company. He celebrated the 52d anniversary of association with the Kidder, Peabody Company, February 24, 1930.

He was married to Ellen Jane Goodwin, who died a number of years ago. He leaves a son, Henry K. Hooker, of 20 Winthrop road, Brookline. Gamaliel Bradford once dedicated a book to him.

Chicago Paper Market Still Drifting Along

Local Industry Practically Marking Time Until General Business Conditions Improve—Fine Paper Section Marking Time at Present—Kraft Wrapping Paper Situation Little Changed—Sales Forces Planning Active Campaign for Orders

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 19, 1932—The Chicago paper market is drifting aimlessly, marking time until business in general improves its position and takes a positive step forward. There is little of news in this situation. Mill representatives and jobbers find their customers eager to set a low inventory record and, evidently, nothing much in the way of selling can be done until after the inventory period is actually over. Reports indicate that most of the paper executives here expect a "drifting along" process at least until some time in the early part of 1933. Despite this often expressed opinion, sales forces here are planning some exceptionally well grounded sale methods and, even though most buyers do not even want to discuss new lines, the new products are being prepared with more attention to quality, service and economy than ever before. The industry, it is reported, is in a fairly good position to begin an upward trend and the readjustments that have been made have weeded out much dead timber by way of rational economies.

The kraft market here is practically unchanged, with merchants preferring now to take action to iron out some of the perplexing credit wrinkles. Fine papers report little change, although there is a reported evidence of closer cooperation and understanding that should result in continued stability and improvement—though slow. Ground woods are continued dull. News print commitments, in the making, are not expected to show any particular increase. The paper board industry continues to thoroughly investigate its field, spurred on by a betterment in actual demand.

Paper Foundation Organized

With permanent offices in rooms 364 and 366 in the Conway Building, Chicago, and with its plans clearly outlined for immediate action, the Paper Foundation, designed to secure an exposition of the manufacture and uses of paper in all its phases at the Century of Progress Exposition in Chicago in 1933, is now well organized and ready to sell the industry itself on the idea.

Phil Howard, publisher of the *American Paper Merchant,* has been appointed managing director of the Foundation. The Board of Governors, while not yet completed as to personnel, will be composed of Harold R. Knott. president of the Salesmen's Association of the Paper Industry; W. N. Gillette, Chicago Paper Company, representing the Western Paper Merchants Association; D. F. Peck, Hanchett Paper Company, representing the Chicago Paper Association; Allan Abrams, representing TAPPI; Fred C. Boyce, vice-president of the Wausau Paper Mills, representing the American Pulp and Paper Mill Superintendents' Association, and others. Sidney Willson is expected to appoint a representative member of the American Paper and Pulp Association.

The first meeting of the Board of Governors will be held within the next ten days and at that time plans will be formulated to inaugurate a national drive for financial and moral support so necessary to insure the proper display of one of the country's greatest industries. A permanent treasurer will also be appointed.

According to Mr. Howard, the paper industry must be made to "stand up on its own feet at the Century of Progress along with steel, the electric industry, the automotive industry and other important industries." An option has been taken on a splendid location in the Graphic Arts Building along the Lake front and some of the preliminary financing has already been underwritten by an enthusiastic group of Chicago merchants and manufacturers.

Chicago Paper Association Meets

The Chicago Paper Association, meeting at the Bismarck Hotel, Chicago, on Tuesday evening, December 13, passed a resolution which called for the appointment of a committee of five members to thoroughly investigate the credit situation and to formulate ways and means whereby credits can be properly studied and controlled within the organization itself. Credits formed the chief business of the evening and the Association is paying particular attention to extension of credits and to the establishing of new credits, largely to circumvent the prevalent practice whereby a buyer exhausts his credit in one place and immediately opens a new account with another.

An interchange of credit information will probably be an outgrowth of the investigation, which touches a subject doubly serious to coarse paper jobbers, particularly at this time. Peter P. Dunne, McNulty Paper and Twine Corporation, was appointed chairman of the credit investigation committee. Other members are Carl Croeger, Hanhett Paper Company; Fred Rudolphi, Hollis & Duncan; William Chukerman, J. Chukerman & Sons and L. L. Levin of Levin Brothers Paper Company.

Phil Howard, newly appointed manager of the equally new Paper Foundation, organized to promote the proposed Paper Exhibit at the forthcoming Century of Progress Exposition in Chicago, was also present at the Chicago Paper Association meeting and outlined the program to finance this exhibit. Mr. Howard met with a favorable reception and received some definite support, although members of the coarse paper group were reported to feel that the manufacturers and converters should bear the brunt of the cost.

News of the Trade

Comes an interesting news item from the public relations department of the McNulty Paper and Twine Corporation which reads as follows: "After a year of many disappointments, hardships and headaches, our president, W. P. McNulty, has decided in favor of a vacation. As a result of his decision he left on December 16 by way of Nashville to Atlanta, thence to Jacksonville, on through to Palm Beach and Miami Beach for three or four weeks vacation, returning to his office in the early part of January. As a lover of the great outdoors, we are sure W. P. (Wrapping Paper McNulty, as he is known to the trade) will return refreshed and rested, ready for the better and bigger orders of 1933."

Reports from 1,465 industrial establishments in Illinois disclosed decreases from October to November of .4 per cent in employment and 3.6 per cent in pay rolls, according to the monthly review of the industrial situation in the state by the Illinois department of labor. The printing and paper goods group reported gains of 2.1 per cent in employment and 1.1 per cent in pay rolls.

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Federal Shipbuilding and Dry Dock Company
Illinois Steel Company
National Tube Company
Oil Well Supply Company
The Lorain Steel Company
Tennessee Coal, Iron & R.R. Company
Universal Atlas Cement Company

Pacific Coast Distributors—Columbia Steel Company, San Francisco, Calif. *Export Distributors*—United States Steel Products Company, New York, N. Y.

Boston Paper Market Quiet

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 19, 1932—As for the last few weeks, hardly better than a moderate volume of paper has moved from the Boston market. Most buyers, in the midst of the inventory period, are deferring purchases until after the turn of the year. In the majority of lines, the demand for paper for holiday purposes has been practically all filled, although, in some cases, many small orders are being received for Christmas specialties. Bonds and ledgers are selling in normal amounts for the time of year.

Kraft papers are moving to some extent. The textile trade, from the dealers in raw material to the mills and converters, as well as members of other industries using wrapping paper, is more optimistic, so that there is a prospect of a good demand from these sources eventually. New England textile mills continue to resume or increase operations and there are definite indications of augmented activity among shoe manufacturers, particularly in Brockton, Mass. Box papers are moving fairly well. The box board market is strong, with a little more activity. The outlook seems favorable for a still larger volume of business with the advent of the new year.

As in other industries, purchasers of paper stock have an eye on their inventories so that they are not buying any more than is actually needed at present. Most prices are unchanged. In old papers, No. 1 kraft is quoted as low as .70 and as high as .95, compared with .75 @ .85 previously. White blank news has declined to .80 @ .85 from a range of .90 @ .95. Old newspapers have been marked down to .30 @ .35 from a former range of .35 @ .40.

Nekoosa-Edwards Forestry Operations

APPLETON, Wis., December 19, 1932—Forestry operations of the Nekoosa-Edwards Paper Company, Nekoosa, Wis., will be expanded during the coming year. Application has been made to the State of Wisconsin to designate another tract of land comprising 440 acres as a reforestation project. Hearings are to be held January 16 by the Wisconsin Conservation Commission to determine admissibility under the forest crop law, with its exemption from property taxes until timber is cut.

This company has pioneered in planting and cultivating its own forests and eventually hopes to cut enough pulpwood from its own reserves to supply its mills.

Another change has been made in the federal forest personnel. Leslie Bean, formerly forest ranger in the Flambeau National Forest of Wisconsin, has been transferred to Minnesota, where he will be supervisor of the Superior National Forest. He will have about 2,000,000 acres in charge.

J. L. Renehan Leaves Wortendyke

RICHMOND, Va., December 15, 1932—J. L. Renehan has resigned as head of the gummed paper division of the Wortendyke Manufacturing Company, this city, effective January 1.

Mr. Renehan became connected with the Wortendyke Manufacturing Company early in 1929 and soon developed its well known brands of stay, veneer and corrugated box tapes, both cloth and paper. These were supplemented in the past year with a well rounded line of flat gummed label papers, making the company one of the few converters in the country that are manufacturing a complete line of gummed products.

Mr. Renehan has no definite plans for the future at this time, but he will probably continue in this brand of paper converting.

News of Wisconsin Paper Industry

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 19, 1932—Safety schools held principally among paper mill workers at Stevens Point and Rhinelander, Wis., concluded their sessions last week with banquets. The seriousness of the safety problem was forgotten for these meetings, at which Arthur F. Briese, Chicago humorist, was the speaker. In each instance, he posed as an English visitor in America who was substituting for the real speaker, and derided Americans to the point of anger, only to reveal when his address was rudely interrupted that he was the humorist actually scheduled.

J. M. Conway, president and general manager of the Hoberg Paper and Fibre Company, Green Bay, Wis., presided at a taxation conference of state wide importance held at Madison, Wis., last week. He is president of the Wisconsin Taxpayers Alliance, and is a leader in the movement for governmental economy. An entire day was devoted by speakers to a discussion of the need of a reduction of expenditures. Mr. Conway spoke of the aims and purposes of taxpayers' organizations.

McKinley DuPree, 33, an employee of the Nekoosa-Edwards Paper Company, was burned to death in a tool shed on an island near the company's mill at Port Edwards. He had fallen into the river, went into the shed to dry himself and was a victim of flames caused by the use of gasoline to start a fire.

Paper Demand Quiet In Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., December 19, 1932—Very little change in price is reported in any of the paper lines. There have been some alterations, but they have been of a minor nature. Kraft shows no change, but collections are causing some difficulties. However, it is doubtful if a check of this year's business will show the credit difficulties that were shown this time last year. For one thing the jobbers and manufacturers have become exceedingly wary of granting credit to any but established customers. As a result the percentage of C.O.D. shipments this year will be much higher than at any time during the last several years.

At the present time, other than in strictly seasonal merchandise, the paper trade seems to be marking time until the first of the year at least. It is believed the new year will start in somewhat better than 1932 did. The trade, however, is expecting no radical improvement next year and will continue to hug the shore pretty closely.

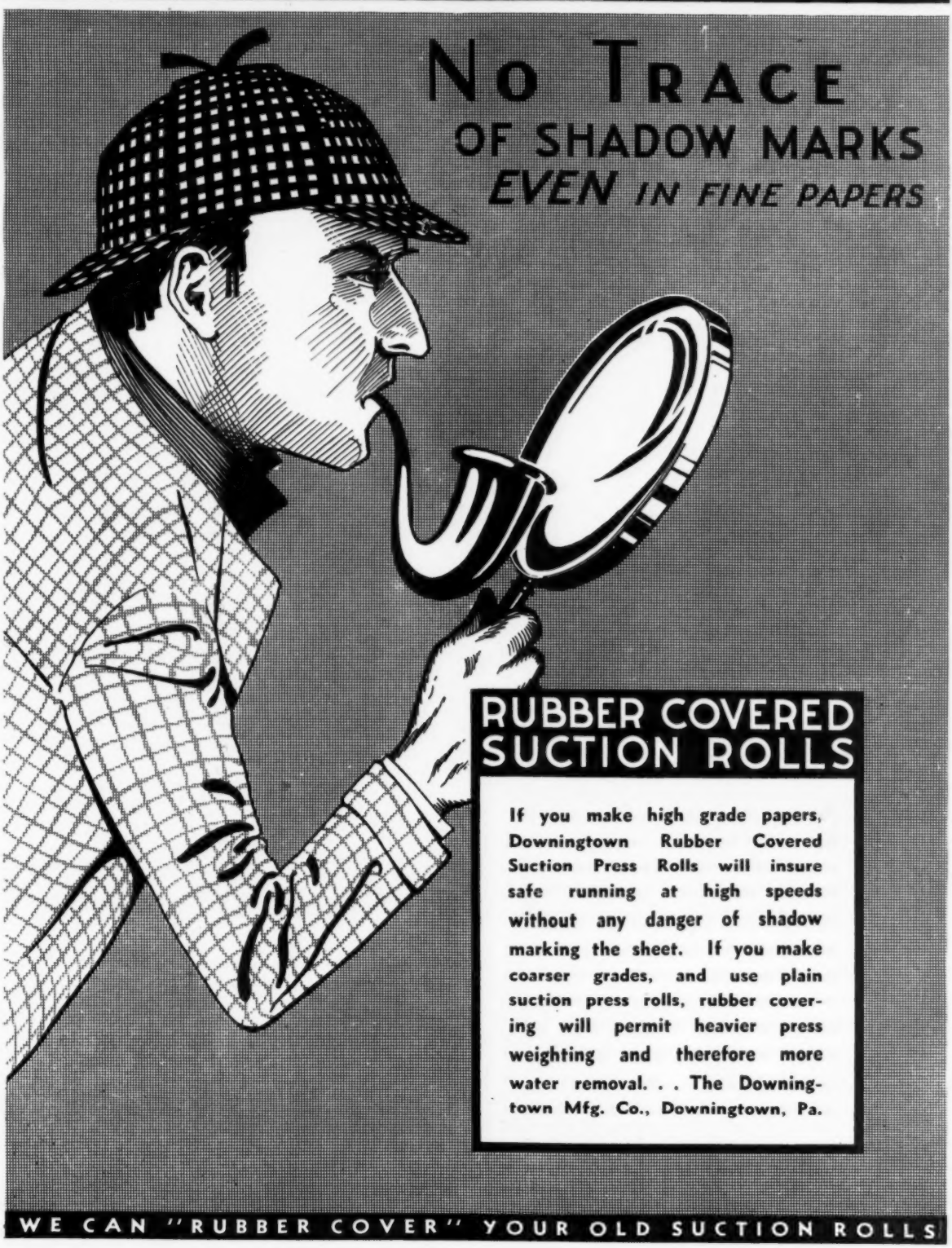
Demand for news print has increased in the last week, due largely to more advertising before Christmas. This fair demand is likely to continue for another two weeks, for many sales will be advertised the week following the holiday. Prices are about the same as they have been for the last month or so. Little demand is seen for paper stock though prices continue to maintain the levels set about three weeks ago when a slight improvement was seen.

Herbert S. Lee Passes On

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 19, 1932—Herbert S. Lee, of East Arlington, Mass., a retired New York manufacturer, died Wednesday at his residence, 11 Trowbridge street, in that place. He was born in Brooklyn, N. Y., October 17, 1867, and passed most of his life in and around New York. He retired more than six years ago. He is survived by his wife, Mrs. Isabelle Bryant Lee; a son, Herbert S. Lee, Jr., of West Roxbury, and a daughter, Charlotte E. Lee, of East Arlington.

DOWNINGTOWN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If you make high grade papers, Downingtown Rubber Covered Suction Press Rolls will insure safe running at high speeds without any danger of shadow marking the sheet. If you make coarser grades, and use plain suction press rolls, rubber covering will permit heavier press weighting and therefore more water removal. . . The Downingtown Mfg. Co., Downingtown, Pa.
WE CAN "RUBBER COVER" YOUR OLD SUCTION ROLLS

New York Trade Jottings

J. E. Linde Paper Company, New York, has filed notice of decrease in its capital stock from $1,250,000 to $750,000.

* * *

The Rope Paper Sack Manufacturers' Association held an important meeting at the Hotel Biltmore, New York, recently when important problems of the industry were discussed.

* * *

R. S. Kellogg, secretary of the News Print Service Bureau, New York, is visting Canada in the interest of his organization, and plans to return to headquarters early in the New Year.

* * *

The Annual Convention of the American Paper and Pulp Association and affiliated organizations will be held at the Hotel Pennsylvania, New York, February 13-16, 1933. At a recent meeting, the executive committee of the American Paper and Pulp Association decided to hold a luncheon on Thursday of Paper Week instead of the annual banquet on Thursday night as heretofore. The Association's business meeting will be held on Thursday morning as usual.

* * *

The Ace Paper Company, Inc., formerly at 139 Spring street, is now occupying new quarters at 127 to 133 Bleecker street, New York, with new telephones Gramercy 7-4561-6 inclusively. The principals of this concern feel that they have made a very important progressive step in occupying these enlarged quarters. They have doubled their space. This move reflects the confidence which the principals of this concern have in the future growth of the business.

* * *

Whiting-Patterson Company Inc., 386 Fourth Avenue, New York—A. E. Whiting, president—who operated the fancy paper business at that address prior to September, 1931, announce that they are now continuing the operation of that business recently conducted in the name of Whiting-Patterson-Supple, Inc. L. R. Cramblet is in charge of the New York office. Whiting-Patterson are now working on plans to extend and improve their fancy paper business in which they have been specialists for many years. They are now working on new lines and expect to have shortly some very interesting numbers of particular appeal to the box trade and greeting card industry. They are merchandisers of all kinds of fancy papers—plain, coated, decorated, embossed; and in a field in which it might be said they were pioneers, they have grown steadily and progressively. Their plans for future development indicate that their aim now, as in the past, is to be a leader in the fancy paper industry.

* * *

Steps looking toward standardization in book manufacture as an economy measure for the benefit of the industry were taken at a meeting of the Book Clinic, held at the Advertising Club of New York recently. A committee was appointed, composed of manufacturers of paper, book board and cloth, and representatives of book publishers and bookbinders, to study possibilities of standardization and to report back to the clinic. The committee includes Miss Caroline Lloyd, secretary of the Binders Board Manufacturers' Association and Quincy P. Emery, of Quincy P. Emery, Inc., representing the paper manufacturers. The committee is not empowered to take any action. It will merely investigate conditions and present its report, probably with recommendations, to the Book Clinic. Quincy P. Emery said that he believed paper sizes were very well standardized, but that frequently a publisher decides to get out a book in an odd size and doesn't give the manufacturer time to make it. "They want it in a hurry," he said, "and it doesn't pay the manufacturer to make odd sizes when the quantity is less than 5,000 pounds." Mr. Emery presented a revision of book paper trade customs which is being printed in pamphlet form for distribution, making certain changes which are to be rigidly enforced.

Who Is Getting Kicked in the Paper Industry?

Once upon a time a bunch of mules inhabited a fertile, well-watered valley, where the grass was high and luscious. They waxed fat and multiplied.

That valley was surrounded by barren hills, infested with wolves.

Forced by the necessity for existence, these wolves were wont to leave their barren hillsides and attack the mules, who, driven together by fear, formed a circle with each mule's head facing his particular enemy. Every mule then, under the cunning, vicious attack of the wolves, lashed out with its hoofs and, in kicking its neighbors, only added to the suffering and loss inflicted by the wolves.

When the wolves had been satiated and the mules almost annihilated, one old grayhead, wiser than the rest, said, "My fricnds, if we are to withstand the attack of the wolves, we must stand together, as before, *but with our heads together,* then our flying hoofs will present a united front to our enemies, who will be beaten off without loss to ourselves."

They did. The attack of the wolves was successfully withstood and the mules lived to wax fat and multiply again.

Paper manufacturers are not mules, but by putting their heads together and not each seeking to defend himself alone, the industry can successfully withstand any attack!

Think that over, as you enjoy the holiday season!

O. M. PORTER.

Frank W. Parker Dead

Frank Ward Parker, sales manager of the Union Bag and Paper Company, in the Woolworth Building, New York, died suddenly December 13, in Fifth Avenue Hospital, of an acute internal disorder. A descendant of settlers of Little Silver, N. J., Mr. Parker lived at 117 Prospect Avenue, Red Bank, N. J.

Survivors are his widow, the former Miss Ella Brown; two daughters, Agnes and Louise Parker; a brother William T. Parker, of Little Silver, and two sisters, Mrs. Frank L. Sherwood, of Red Bank and Mrs. Robert G. Allen, of Bloomfield, N. J.

Pacific Paper Mills Extending Facilities

VANCOUVER, B. C., December 3, 1932.—The Pacific Mills, Limited, subsidiary of the Crown-Zellerbach Corporation of the United States, is planning to extend its mills at Ocean Falls, B. C., and Vancouver, B. C., to manufacture fiber containers for the use of the salmon, sugar and dairy products packers of the province, according to the industrial department of the Canadian National Railways. The alterations will cost in the neighborhood of $350,000. In addition to this new product, the mills have a capacity of 220 tons of newsprint and 55 tons of wrapping paper daily.

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PAPER MILL MACHINERY

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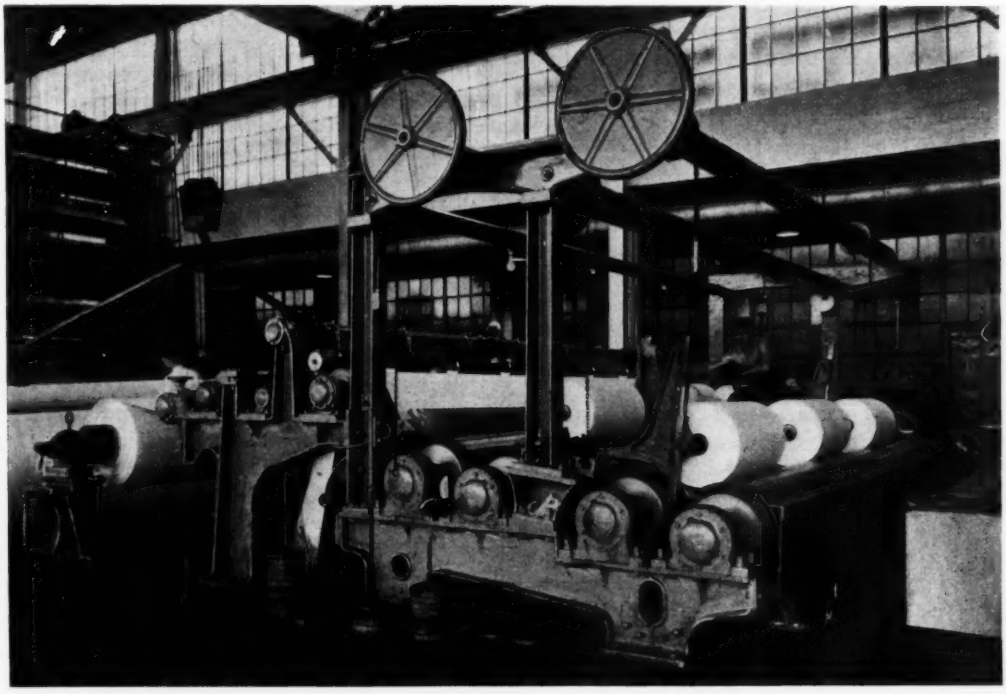

MOORE & WHITE HIGH SPEED all ball bearing equipped four-drum winder & slitter with quick removable ***bottom*** slitter blades in mill of Champion Fibre Co., Canton, N. C.—236″ width of drums operating at a paper speed of 2100 feet per minute.

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UPON REQUEST

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COMING EVENTS

American Paper and Pulp Association, Fifty-Sixth Annual Convention and Meeting, Pennsylvania Hotel, New York, February 13-16. Luncheon, Thursday, February 16.

National Paper Trade Association of the United States, Convention, Pennsylvania Hotel, New York, February 13-15. Luncheon, Wednesday, February 15.

Technical Association of the Paper Industry, Convention, Pennsylvania Hotel, New York, February 13-16. Luncheons, Wednesday, February 15 and Thursday, February 16.

Salesmen's Association of the Paper Industry, Annual Meeting, Pennsylvania Hotel, New York, Tuesday, February 14. Luncheon, Tuesday, February 14.

New York Association of Dealers in Paper Mills' Supplies, Annual Banquet, Hotel Commodore, New York, Wednesday, February 14.

Canadian Pulp and Paper Association, Annual Meeting, Montreal, January 25-27.

THE TAPPI YEARBOOK

It is with pleasure that we welcome to the publications of the paper industry the 1932 Yearbook of the Technical Association of the Pulp and Paper Industry. Although the association has in the past issued an annual list of members it has never before supplemented this with its excellent record of activities.

It has been our impression that the Technical Association has been hiding its light under a bushel for the many past years. The Paper Trade Journal has been familiar with the activities of the organization and has been proud of the privilege of being associated with such a progressive body. The association has an excellent story to tell and in the Yearbook it does so in a simple and dignified manner.

Although it seems like yesterday when the association was organized, the records show that seventeen years have elapsed since the eventful day when it was projected as a Section of the American Paper and Pulp Association at the old Waldorf-Astoria Hotel. At that time there were but few men in the industry who were trained in the engineering arts and sciences. It is therefore remarkable to note the great changes that have taken place, particularly in regard to the type of men who have attained the positions of leadership in the industry in the last decade and a half. Today few, if any, companies of consequence are without technically trained men in their organizations.

The growth of the association is depicted in a chart which shows the continuous increase in membership from 200 in 1915 to 1,200 in 1932. Only in 1921, during the first post war slump was there any deviation from the upward growth.

It is interesting to note the geographical distribution of the membership and to observe that nearly sixteen per cent are residents of other papermaking countries. TAPPI is indeed an international organization of far reaching influence in the development of this great industry.

A consequence of the membership growth is the formation of a number of local sections serving the members in various localities such as the Pacific Coast, Lake States, Kalamazoo Valley, and the Delaware Valley. The local organizations enable the members of a restricted area to get together frequently to hold meetings and discuss subjects of interest. The attendance at some of the sectional meetings is frequently nearly as great as that of the national conventions.

The Yearbook contains charts showing how the association meets the specific needs of the industry through its divisional organization. The major divisions are shown to cover management, engineering, research and development, raw materials, operating, converting and consuming and testing. Each division is made up of a number of committees on which the members are well qualified to serve in their respective capacities. These committees serve throughout the year and are responsible for the association meetings and reports.

A number of chapters in the book deal with the regulations of the association governing committees, standards and manuscripts. It is due largely to the orderly way in which the association does its work that it has made so much progress and is able to have such valuable meeting programs.

The titles of the Special Reports issued by the association during the past ten years are published. With the exception of the first thirty-four, none of these have been published for general circulation since it has been the policy of the organization to restrict the circulation of the valuable information contained in the reports, to those who contribute information of value and to the companies who help to finance the association. The contents of the Special Reports are of very great value to the pulp and paper companies since they deal with problems common to the mills.

The contents of the volumes of Technical Association Papers still in print, is published. The great demand for this literature is made evident by the fact that only Series V, VII, X, XIV, and XV, are now obtainable.

The membership list, classified alphabetically and geographically, is included and a section of the book contains the products of the contributing members of the association, a page being devoted to the products of each member. Undoubtedly when times are better, every company of consequence serving the industry with machinery,

chemicals, and supplies, will be counted among the members of the Technical Association.

We congratulate the Technical Association for its fine record of accomplishment and we hope that its usefulness to the industry will continue for many years to come.

Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 21, 1932—Barton, Duer & Koch Company has been awarded the contract for furnishing the Government Printing Office with 10,000 pounds (7,200 sheets) of 32½ x 42½, chip board at 1.3165 cents per pound, bids for which were received on December 2.

The Mathers-Lamm Paper Company will furnish 4,050 sheets of 9 x 14 blue cloth lined paper at $12.3375 per thousand sheets. The Aetna Paper Company will furnish 5,000 pounds (31,000 sheets) of 21 x 32½ 50 per cent rag, yellow ledger paper at 10.22 cents per pound and the R. P. Andrews Paper Company will furnish 950 sheets (146 pounds) of 23 x 33 100 per cent rag, waterproof white ledger paper at 50 cents per pound. Bids for all of these items were received on November 30.

Barton, Duer & Koch Paper Company will furnish 600 sheets of 28 x 40, 100 per cent rag mounting board, 4,500 sheets same various sizes; 2,000 sheets of best quality binders board and 200 sheets same 28 x 40, all at $862.50, bids for which were received on November 23.

Walker Goulard Plehn Company will furnish 40,000 pounds (56,000 sheets) of 21½ x 32½ No. 70 chip board at 1.2 cents per pound less ½ per cent, bids for which were received on November 18.

The Mathers-Lamm Paper Company will furnish 200 pounds of jute tag board in 39 inch rolls at 9 cents per pound, bids for which were received on November 14.

Rise In Prices Will End Depression

[FROM OUR REGULAR CORRESPONDENT]

SPRINGFIELD, Mass., December 20, 1932—Col. Benjamin A. Franklin, formerly with the Strathmore Paper Company speaking before the Springfield Chapter, National Association of Cost Accountants, last week, indirectly informed the members that a rise in commodity prices would tend to bring an end to the financial chaos in the nation. He cited the case of a board of directors who advanced the price of their line of manufacture 10 per cent; as a result business increased rapidly. A second advance brought a storm of orders, and Col. Franklin drew the conclusion that buyers everywhere are looking for lower prices; when the prices start the other way they immediately rush to buy before the prices go higher.

"The price situation in America today," said Col. Franklin, "is one of the most monumental examples of ignorance seen in my 40-odd years in the business field here."

Finnish Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 19, 1932—Finnish exports of paper during the first ten months of this year totaled 234,508 metric tons compared with 224,530 metric tons during the corresponding period in 1931. Exports of wrapping papers, with the exception of greaseproof papers, were about on a level with last year, while exports of newsprint show a rise from 156,577 tons to 164,043 tons. Writing paper exports were also larger, showing an increase from 1,937 tons to 2,051 tons.

Knowlton Bros. Changes

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., December 19, 1932.—Announcement is made of a reorganization of the executive staff of Knowlton Brothers, Inc., which will become effective January 1. Willis H. Howes, vice-president, and Orin R. Summerville, advertising manager, have filed resignations and plan to remove to Hamilton, Ohio, early next month where they will become connected with the Beckett Paper Company. Both men have been identified with the local concern for many years. Mr. Howes came here in 1905 from Lockport and is regarded as an authority on matters pertaining to the manufacture of paper. In this new position he will also serve as vice-president besides being active in the sales and production department. Mr. Summerville will assume a responsible position in the sales division of the Ohio concern and his previous experience makes him well qualified.

The sales force of Knowlton Brothers, Inc., will consist of Robert W. McCormick, who has had supervision of the New York office, and Frank E. Davenport, of Manchester, Conn., who became connected with the company recently. Both are regarded as experienced paper mill men with many years of service to vouch for them. James C. McCormick will continue as treasurer and H. E. Harmon is to be retained as secretary of the company. E. W. Clark will remain as purchasing agent while David C. Knowlton is to have connections with the sales department. Theodore Knowlton, who holds an interest in the company, will be made general manager and will also supervise sales with office in this city.

Carthage Mill Resumes Operations

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., December 19, 1932—Officials of the recently organized Carthage Papermakers, Inc., report orders coming in very satisfactorily and no difficulty has been experienced in the resumption of operations. It was announced that the working force of 25 hands will be increased as the business expands. Operations were delayed for several days because of the late arrival of raw materials and meanwhile employees took advantage of the fair weather conditions to complete exterior plant improvements. William J. Cassidy, recently elected president, and Julius Miller, are supervising plant operations, while Bert Thomas is in charge of the office affairs. The mill is being operated under an arrangement with the Carthage Pulp and Board Company primarily to provide employment for former workers of that concern.

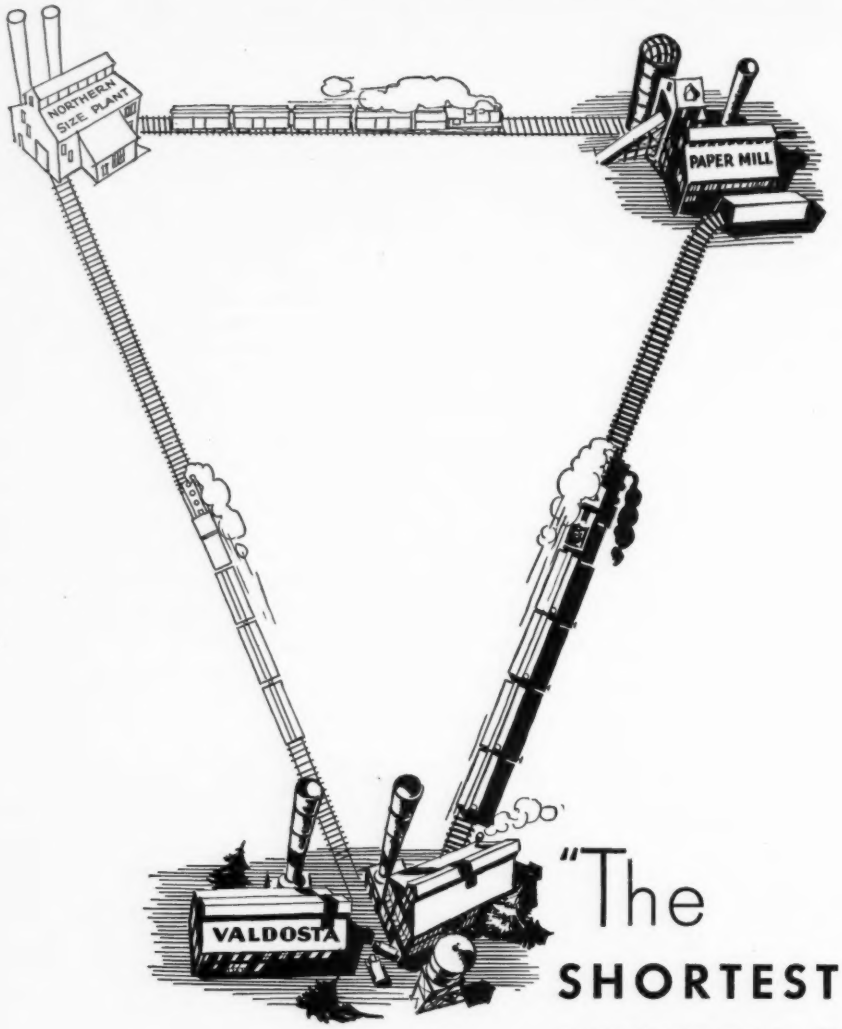
Contract Paper Co. to Start

[FROM OUR REGULAR CORRESPONDENT]

LOS ANGELES, Cal., December 17, 1932—Eugene Singer will start in business early in January under the name of The Contract Paper Company with headquarters in Los Angeles and a sales office in San Francisco, concentrating exclusively on selling contract tonnage for direct mill shipments to chain, department stores and buying groups.

Through his previous connections with the Hawley Pulp and Paper Company and the paper trade on the Pacific Coast, Mr. Singer has recognized the importance of establishing a specialized paper sales service to fit the particular requirements in this field.

Until his business headquarters have been selected, Mr. Singer will work from his present residence in Hollywood, 5757 Franklin avenue.



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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

The Design, Construction and Costs of Arc Welded Pebble Mills*

By D. L. Pellett[1]

Introduction

Two years ago the concern employing the writer developed a chemical process requiring the use of a pebble mill. One mill ten feet long, seven feet six inches in diameter, and weighing eighty thousand pounds (loaded) was purchased.

It was found that this new process was practical and very profitable. The concern's executives decided to expand production to the extent that six new pebble mills would be required. Market conditions made it desirable that these new units be put into operation at the earliest possible date. The builder of the original mill was asked to bid on six units similar to the original installation. When this bid was submitted it was found that the builder required fifty days in which to manufacture and deliver these mills. This late delivery date prompted the buyer to design and manufacture the pebble mills in the hope that delivery would be expedited and the purchase price reduced.

During the past it has been general practice to build pebble mills, rod mills, and similar structures, with cast heads and a riveted shell. The cast head was bolted to an adapter ring which was riveted to the shell plate. This type of construction necessitated the use of large and expensive patterns and drill jigs. Fig. 1 shows the structural details of this type of construction.

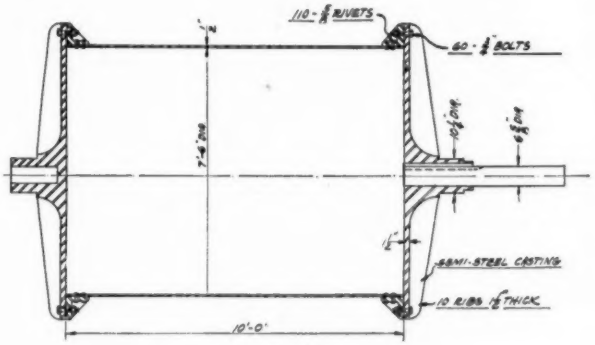

FIG. 1

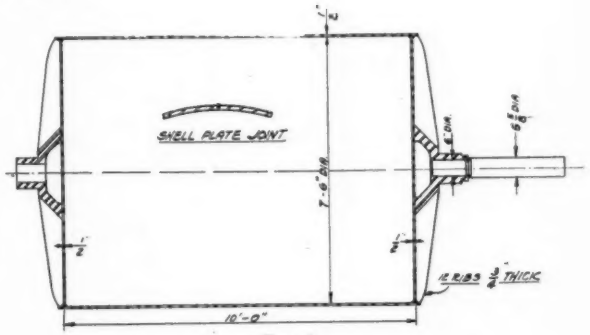

FIG. 2

It was decided that the manufacturing cost of an all steel welded structure would be less than the cost of the mill just described. In the following discussion the writer attempts to justify the decision to use arc welded construction. The design, stress analysis, and manufacturing costs are discussed.

Design

The adopted design of pebble mill drum is shown in Fig. 2. The outer shell is a plate, one half inch thick, rolled into a cylinder, the joint is welded as shown in Fig. 2. The working stresses in the shell are very low, however, it was not thought advisable to use a thinner plate since the inside surface is subject to corrosion. The drum is supported by a double row, tapered roller bearing mounted on each journal. The computed deflection of the loaded drum was found to be very small. This fact permits the mounting of the bearings without a self aligning feature.

The head consists of a circular steel plate with a steel casting welded to the plate at its center. The casting on the driven end is bored for the shaft which is welded in place. Twelve radial ribs, three quarters of an inch thick, resist the bending moment imposed on the head by the vertical reaction at the bearing. The head plate is considered as having no strength since its inside surface is subject to corrosion. The torsional stresses in the driven head plate are of a negligible magnitude.

The working stress in the ribs was taken as 8,000

* This is a paper which was awarded a one hundred dollar prize in the Second Lincoln Arc Welding Prize Competition, sponsored by the Lincoln Electric Company, Cleveland, Ohio. A total of $17,500 was awarded in this competition. The sponsors plan to publish the leading papers submitted in the prize contest in book form at a later date.

[1] Engineer, Hotel Hamilton, Hamilton, Ohio.

pounds per sq. in., this figure gives a safety factor of about four, based on a fatigue limit of 33,000 pounds per square inch. The strength of welds was based on data published by The Westinghouse Electric and Mfg. Co., welds in tension, compression, or bending were stressed at 5,000 pounds per square inch, welds in shear at 4,000 pounds per square inch.

Stress Analysis

The following factors necessitated a thorough stress analysis in the design of this equipment.

(a) The substitution of welded steel parts for castings makes it possible to use much higher working stresses. This stress increase has a decided effect on the appearance of the completed structure. Even the most experienced engineer would not be justified in "designing by eye" without computations.

(b) The pebble mills being discussed are important units in an elaborate chemical process. A mechanical failure would not only necessitate expensive repairs but would entail losses due to curtailed production.

(c) A maximum economy of labor and materials can never be obtained without a thorough stress analysis.

The stress computations are divided into the following divisions: (1) Head, (2) Shell and (3) Shaft.

Head

The stress analysis of the head is complicated by the indeterminate nature of the structure. The problem was solved by an application of the principle of "least work". Each head was considered as being composed of twelve beams (ribs) fixed at the shaft end and a concentrated load applied to the free end. See Fig. 3. The concentrated load varies from zero, when the rib is in a horizontal position, to a maximum when the rib is in a vertical position. The following method was used in determining this maximum load.

M = bending moment at any beam section.
dx = increment of beam length.
E = modulus of elasticity of material.
I = moment of inertia at any given section.
B = load on the end of any beam.
L = length of beam.

$$W = \int M^2 dx/2EI = \int B^2x^2dx/2EI = \text{work stored in a beam by an external load.}$$

$$= B^2K$$

K = a dimensional constant.
Let P = total load on all beams of moment arm a.
Let Q = total load on all beams of moment arm b.
Let R = total load on all beams of moment arm c.

$$W_{total} = KP^2 + KQ^2 + KR^2$$

$$15\tfrac{1}{2} \times 35{,}000 = aP + bQ + cR = D = 473{,}000$$

(1) $R = (D - aP - bQ)/c$

$$W = K\,[P^2 + Q^2 + (D - aP - bQ)^2/c]$$

$$dW/dP = K\,[2P + (2abQ - 2Da + 2Pa^2/c^2)\,] = 0$$

$$dW/dQ = K\,[2Q - (2abP - 2Db - 2Qb^2/c^2)\,] = 0$$

(2) $Pc^2 + abQ - Da + Pa^2 = 0$

(3) $Qc^2 \mp abP - Db + Qb^2 = 0$

a = 43½
b = 32
c = 12

Substituting the above values of a, b, and c in equations (1), (2), and (3), the following values of P, Q, and R can be obtained after simultaneous solution:

P = 6660 lb.
Q = 5100 lb.
R = 1600 lb.

When the head is in a position symmetrical with the horizontal and vertical centerlines each of the loads P, Q, and R is carried by four ribs. In order to obtain B for each rib the loads P, Q, and R should be divided by four. If the head is turned through an angle of fifteen degrees from that shown in Fig. 3 another set of values for B can be computed by the above method.

The following table gives values of B for corresponding values of θ.

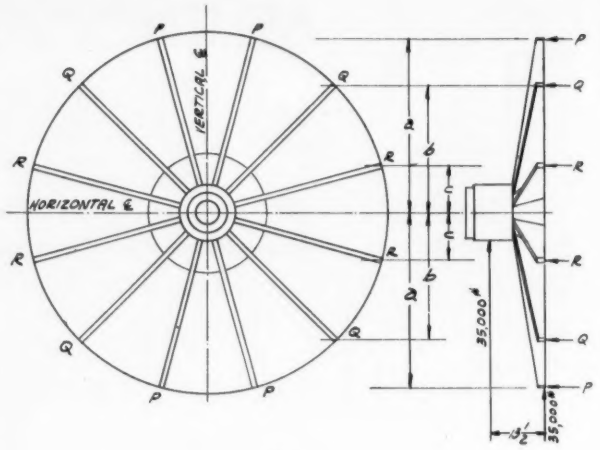

FIG. 3

B (lb.)	θ (degrees)
0	0
400	15
850	30
1270	45
1530	60
1660	75
1750	90

From the above table it is obvious that the maximum load is applied to a rib when it is in a vertical position. This maximum load of 1750 pounds is the design load for the ribs.

The ribs are considered as being cantilever beams with the load concentrated at the end. From this point on, the problem is one of designing a beam of uniform strength. The head plate could be considered as being composed of twelve thirty degree sectors, each sector being secured to a rib to form a "T" section beam. However, the inside surface of the plate is subject to corrosion and the writer did not feel justified in relying on the head plate to carry any of the beam load. The only function of the head plate in the stress analysis is to prevent buckling of the compression side of the rib.

The following method was used in designing the ribs:

$d = \sqrt{1.750x}$

d = depth of rib in inches
x = distance from outer end of rib to section being determined.
Maximum fiber stress is 8,000 lb. per sq. in.
Load of 1,750 pounds concentrated at the end of rib.
Ribs to be of ¾ inch steel plate.

The above equation was derived from the conventional beam equation.

$$s = MC/I$$

The following table gives assumed values of x and computed values of d:

x in.	d in.
0	0
10	3.24
20	4.59
30	5.62
40	6.48
45	6.88

The theoretical curve obtained from the above data was modified to facilitate cutting the material and to obtain thickness enough at the end of the rib for a weld long enough to carry the shear of 1750 pounds, see Fig. 2.

The depth of the rib end was determined as follows:
4,000 lb. per sq. in. = shear stress in weld
1,750/4,000 = .435 sq. in.
.177 = minimum width of ¼ in. fillet weld.
.435/2x.177 = 1.23 in. = depth of rib end.

The size of weld at the deep end of the rib was determined as follows. The fibre stress in the rib is 8,000 pounds per square inch and 5,000 pounds per square inch in the weld. Therefore the minimum area of the weld should be 8/5 times the area of the rib.

Width of fillet weld =

$$[8 \times .75]/[5 \times 2 \times .707] = .85 \text{ in.}$$

Shell

The shell is considered as being a beam supported at the ends and uniformly loaded.

x = section modulus = $.8 \times 90^2 \times .5 = 3{,}240$ in.^{3}
M = maximum bending moment = $(70{,}000 \times 120)/8 = 1{,}050{,}000$ in. lb.
$S = M/x = 1{,}050{,}000/3{,}240 = 323$ lb. per sq. in.

It is obvious that a stress of 323 lb. per sq. in. is very low, however, as previously discussed, it was not thought practical to use a thinner plate.

Shaft

The strength of the shaft and shaft welds was based on a starting torque of 250 per cent of running torque. The pebble mill is driven at 16 r.p.m. by a fifty horsepower motor.

485,000 in. lb. = starting torque = T

8,350 lb. per sq. in = shear stress in weld, based on a safety factor of three and a fatigue limit of 25,050 pounds per square inch

$$\text{Dia. of shaft} = \sqrt[3]{5T/s} = \sqrt[3]{(5 \times 485{,}000)/(8{,}350)} = 6.62 \text{ in.}$$

It is assumed that all of the metal in the shaft welds is placed on a three inch radius, see Fig. 2.

4,000 lb. per sq. in. = stress in welds

Total width of weld bands = $(485{,}000)/(4{,}000 \times 3 \times 6 \times 3.1416) = 2.125$ in.

This width of weld is divided between two bands as shown in figure No. 2.

A weld at the outer rim of the steel casting transmits the torque between the plate and the casting.

Minimum width of weld = $(485{,}000)/(4{,}000 \times 14 \times 28 \times 3.1416) = .0975$ in.

This figure was increased for practical reasons.

Cost Analysis

The writer has used the following procedure in analyzing the costs and savings due to arc welded construction.

The total cost of the old type of construction is known from the bid submitted. The amount of material in the old type of drum was determined by measurements on the original unit. The amount of labor required in the various machining and assembly operations was estimated by a competent machine shop superintendent experienced in this type of construction.

The total cost of the arc welded drum is the price paid. (A local builder of arc welded equipment was awarded the contract for fabricating the drums.) The amount of material in the drum was determined by the design. Data on the amount of labor required was furnished by the builder.

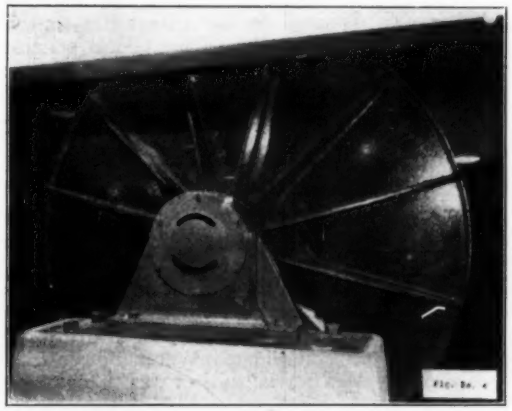

FIG. 4
Welded Pebble Mill Head

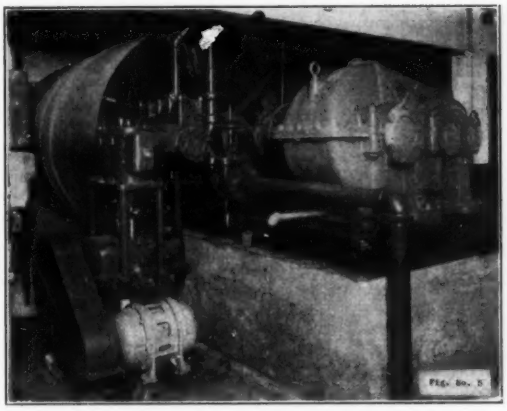

FIG. 5
A Welded Pebble Mill Installation

A detailed cost analysis is given for both the arc welded construction and the old type of construction. The relative and gross savings due to welded construction are shown.

The writer has made the following assumptions in this analysis:

1. The pebble mill builder would pay for material at prices prevailing in this city.

2. The pebble mill builder would pay for labor at rates prevailing in this city.

3. The pebble mill builder would have the same plant overhead rates as those prevailing in a local factory, building a similar product.

4. The builder of the old style mill would be entitled to a profit of 50 per cent over labor, material, and overhead. The builder of arc welded mills would be entitled to a profit of 30% over labor, material, and overhead. The builder of welded equipment should get a smaller rate of profit for the following reasons:

(a) His speculative risks are very small, he has a small plant with inexpensive equipment. He can easily change his product to take advantage of market conditions.

(b) He has little or no risks due to defective castings.

Cost Analysis of a Pebble Mill Drum—Cast Heads and Riveted Shell.

Material		
14,300 lb. of semisteel castings @ .05	$715.00	
4,720 lb. of steel plate in shell @ .03	141.60	
500 lb. of steel plate in lap bar @ .03	15.00	
120 ¾" x 4" bolts @ .13	14.60	
120 ¾" castellated nuts @ .04	4.80	
115 lb. of rivets @ .06	6.90	
525 lb. of steel shafting @ .035	18.10	
Material total		$916.00
Labor		
154 hours of machine time @ $1.20—labor .80, overhead .40	184.00	
150 hours of assembly time @ $.80—labor .60, overhead .20	120.00	
Labor total		$304.00
Total manufacturing cost of one drum		$1220.00
Profit		610.00
Price quoted to buyer		$1830.00

Cost Analysis of a Pebble Mill Drum-Arc Welded Construction

Material		
7,280 lb. of steel plate @ .03	$218.00	
1,625 lb. of steel castings @ .07	113.76	
525 lb. of steel shafting @ .035	18.10	
325 lb. of welding rod @ .0625	20.10	
402 k.w. hours of power @ .02	8.04	
Material total		$378.40

Labor		
40 hours of welding @ $1.30—labor $1.00, overhead .30	52.00	
48 hours of machine time @ $1.20—labor .80, overhead .40	57.60	
35 hours of incidental labor, burning, set up, etc. @ .80—labor .60, overhead .20	28.00	
Labor total		$137.60
Total manufacturing cost of one drum		$516.00
Profit		154.00
Price paid for drum		$670.00

Cost Comparisons

	Welded construction	Old type of construction
Labor	$137.60	$304.00
Material	378.40	916.00
Manufacturing cost	$516.00	$1220.00
Profit	154.00	610.00
Price quoted	670.00	1830.00
Saving in labor due to welded construction	$166.40 = 54.5%	
Saving in material due to welded construction	537.60 = 58.0%	
Saving in manufacturing cost due to welded construction	$704.00 = 57.7%	
Reduction in selling price due to welding	$1160.00 = 63.5%	
Total saving due to welding for the six pebble mills purchased	$6960.00	

Conclusion

In addition to the reduction in manufacturing costs there are other savings and benefits due to welding. The welded steel pebble mill drum weighed 11,000 pounds less than the old type of drum. This fact permitted the use of a smaller anti-friction bearing with a resultant saving of about eighty dollars per mill. This weight reduction entails a power reduction due to decreased friction and inertia forces. The use of welded construction made it possible to operate the installation fifteen days sooner than would have been possible with the old type of construction. These extra days of operation brought about substantial profits.

The six welded steel pebble mills were put into operation during April, 1931. Since that time they have been in continuous operation, six days a week. The mills have been satisfactory in every respect. Figures four and five are photographs of the drums and the completed installation.

The writer hopes that this paper has led the reader to the following conclusions. An arc welded structure can be designed that will withstand severe load conditions with an ample margin of safety. A structure so designed can be built at a substantial reduction in cost when compared with manufacturing methods previously employed.

New Rosin Size Making Booklets

Messrs. Bennett, Inc., have just issued a sixteen page pamphlet which illustrates and describes the Bennett Size-making Process. It covers very completely every phase of the making of rosin size, rosin wax size and wax emulsions.

An interesting feature of the pamphlet is that both the cover stock, and the paper on which is printed the text matter, are samples of grades made from their rosin-wax size and latex.

A copy of this pamphlet may be obtained by writing Messrs. Bennett, Inc., 143 Sidney Street, Cambridge, Mass.

Mills Offered to Eaton-Dikeman

HOLYOKE, Mass., December 17, 1932—The American Writing Paper Company Inc., has offered the use of one of its mills to the Eaton-Dikeman Paper Company whose plant was destroyed by fire about a week ago. Similar offers have been tendered from Adams and Dalton and the Smith Paper Company of Lee. The Holyoke Division at Holyoke would be well fitted for the use of the Lee concern as it is a rag paper outfit.

TAPPI Notes

F. F. Arnoldi, formerly production manager of Canadian Paper Board Company, Toronto, is now sales manager of the paperboard division of Hinde & Dauch Ltd., Toronto, Ont.

D. S. Davis, consulting mathematician and formerly of the Mead Corporation, is now located at 84 Hillside Road, Watertown, Mass.

E. C. Lathrop has resigned his position as director of research for the Celotex Company, Chicago, and is now working as a consulting engineer with offices at 2320 E. 70th Place, Chicago, Ill.

G. M. Pomeroy has resigned his position as superintendent of the Cherry River Paper Company, Richwood, W. Va., and is now located at Hardwick, Mass.

James Ramsay has resigned his position as general superintendent of the Jessup & Moore Paper Company, Wilmington, Del.

Vincent F. Waters, who was formerly mechanical engineer for the Maxson Automatic Machinery Company of Westerly, R. I., is at present very ill and would be glad to hear from his friends in the industry. His address is the Jewish Hospital, Cincinnati, Ohio.

All manuscripts of papers for the annual meeting of the Technical Association must be in the hands of the Secretary, 370 Lexington Avenue, New York, before January 1, 1933.

CORRECTION

The following correction on page 22, line 38 of the November 3, 1932 issue of the PAPER TRADE JOURNAL should be noted: The words "Steam dried" should read "widely different."

Union Bag Assessments

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., December 17, 1932—The filing of a certificate this week with the county clerk terminates the assessment controversy between the Union Bag and Paper Company and village authorities which has been in the courts since last winter. The stipulation was filed by attorneys for both parties involved and sets forth that the proceedings are dropped without costs to either. It also offsets the recent action of the Appellate Division of the Supreme Court in affirming the writ of certiorari granted to the paper concern last spring by Justice Heffernan for a review of assessment valuations. An agreement was reached a few weeks ago in which the paper company announced that the certiorari proceedings would be dropped provided a 40 per cent reduction in valuations was made.

A similar writ obtained by the Union Bag and Paper Power Corporation against the village is still pending despite a 40 per cent reduction also allowed on property valuations, the firm refusing to drop the proceedings. It is understood, however, that they agreed not to start proceedings on assessments for this year.

TAPPI Lakes States Section Meets

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 19, 1932—Speakers at the monthly meeting of the Lake States Section of TAPPI at a dinner at Hotel Conway, Appleton, Wis., last week were Walter Ferris, vice-president of the Oilgear Co., Milwaukee, Wis., and C. K. Boyer, manager of the Interlake division of the Consolidated Water Power & Paper Co. at Appleton. Mr. Ferris' subject was "Oilgear Power Transmission in Paper Mills," and Mr. Boyer spoke on "Modern Pulp Bleaching." The attendance was approximately 200.

Speed Reducers in the Pulp and Paper Industry*

By James A. Porter[1]

The true object or necessity for a speed reducer or speed increaser is to transfer rotary motion from one shaft to another shaft with an even angular velocity or a uniform flow of power.

There are a great many types and variations of this class of machinery such as spur, straight bevel, single helical, double helical or the herringbone gear, worm, spiral bevel and hypoid gears, also the chain and sprocket drives, together with the V belt and plain flat belt means of reducing or increasing speed.

During the later years a number of compelling forces, a few of which are safety codes, more horse power capacity and longer life, have caused the complete enclosure of a large majority of these various systems of power transmission which is the enclosed speed reducer so widely used today wherever power is to be transmitted with either an increase or decrease of shafting speed.

Naturally, with all these numerous methods which are available and practical for transmitting power with an alteration in speed, the question logically arises many times as to what is the best type of speed reducer. Shall we use a spur, herringbone, worm gear or possibly a V belt drive and just how should we proceed to select the correct machine for the job.

This problem of properly selecting the drive is further complicated and made difficult due to the fact that a great many claims for superiority are advanced for this kind of machinery which are not distinctive to any one type but are common to every speed reducer of the enclosed class having the gears running in a bath of oil or lubricated by means of a pump. Furthermore, some of the advantages set forth for certain types of drives seem to be overlapping in character such as high efficiency, long life, correct principle and freedom from breakdowns, thereby eliminating the inevitable losses in production. Claims of this nature are so vague and indefinite that it is often quite impossible for the plant owner or his engineer to absorb the perplexities of such assertions or claims for merit. The purchaser of these machines is not in a position to tabulate the data with respect to the positive and negative features in order that they may assure themselves that they are really selecting the proper type of speed reducer to perform the work in their factory or mill.

We are often sorry to say that some of these claims cannot even be proved by a careful engineering analysis or by testing the machines for efficiency and horse power capacity according to the manufacturer's published rating. In a large number of cases these claims are perfectly justifiable both from a design and engineering viewpoint but the facts are still confusing to the engineering department who have to select the type of drive or to the purchasing department who, of course, are not engineers and know nothing about the details of design and construction. Quite often the speed reducer is bought on a price basis much to the consternation and dismay of the real sales engineer.

The answer to this problem is quite simple. Every type of speed reducer is the best only when the machine is properly designed and constructed and provided it is correctly selected to meet the requirements of the particular application. There is a time and place for everything and no one specific type of speed reducer can possibly fulfill all the necessary demands or specifications found in the different kinds and classes of driven machines. We readily see the truth of this statement by examining the requirements which would be necessary to have a perfect machine which could be used in all applications.

The Perfect Speed Reducer

The perfect and ultimate speed reducer must at all times and under every condition of service be reliable, moderate in cost, efficient over a large range of speed ratios, temperature conditions, load demands and revolutions per minute, possess long life, compactness in the floor space occupied, quietness in operation, possess the quality of transmitting power in a perfectly even manner, free from shock and vibrations. The machine should also have such an arrangement of the high and low speed shafts that would meet any variation of floor space conditions and the necessary coupling connections to the motor and driven machines.

We have not produced up to the present time a speed reducer which could fulfill all of the above specifications. The task seems impossible unless some inventive and resourceful mechanical minded genius could devise and construct a machine which would be catholic in design with respect to the gears and embody or embrace all the principles and produce each function of every type of gearing. This machine must also have as previously mentioned a flexible arrangement of both the high and low speed shafts so as to be readily convertible to either a straight line drive like the concentric spur gear speed reducer, a right angle drive similar to the worm gear and hypoid units, or a parallel shaft drive like the herringbone machine.

We thus are prepared to see that from one single point of consideration such as the arrangement of the reducer shafts that it is quite impossible to always use just one type of machine. A spur gear reducer, herringbone or worm gear unit might each best fit the conditions due to floor space and the location of the driven shaft.

Look at the problem from another angle and assume the application is located in an area where floor space limitations or coupling connections do not enter into the equation. For example, a large ratio like 72 to 1 is required in the reducer and that the driven machine requires a somewhat large amount of power to operate and that the machine will be required for continuous service. In this case we would not care to use a worm gear drive because of high first cost and relatively low efficiency of the gears in the large ratio zone. The herringbone and spur gear reducers are very efficient at this high ratio, also lower in cost under this consideration, so we would probably from an efficiency and cost anlysis select either a spur or herringbone unit.

Let us again look at the problem from one more angle and assume that the efficiency and cost items are not the controlling factors and that the machine or reducer will be required to transmit the power in the most possible even and uniform manner. The worm gear speed reducer due to the inclined plane principle of operation would produce the most uniform flow of torque and would, therefore, probably be selected for the work as the type of speed reducer to best fulfill the requirements of the driven machine.

* Presented at the November, 1932, meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry, Appleton, Wis., November 10, 1932.

[1] Engineer, W. A. Jones Foundry and Machine Company, Chicago, Ill.

We are now in a position to conclude from the exposition of an ideal speed reducer and the preceding examples that no speed reducer, regardless of the type, could possibly have a universal application in the industrial field. It could neither be of such a design nor incorporate enough basic principles of all gearing that defects could not be pointed out in the unit which would render the same unsuitable for operating some certain kind of machine. Every type of speed reducer has its own peculiar properties and if the correct application is made of these qualities there is no reason why that each and every speed reducer selection, regardless of the type, should not be a good drive and give a reasonable number of years of service.

Before we leave this part of the discussion it is well to mention the fact that different types of speed reducers are sometimes called fads or fashions and that they enjoy a large sales volume because they are popular or riding on the peak of public approval. This is far from the truth. Some years ago it was predicted that worm gear speed reducers were a new thing and would soon pass into the discard after the industrial field discovered that this type of drive would wear out in a couple of years due to friction. This statement, or rather distortion of facts has been very much refuted by the fact that more worm gears have been sold every year and today there are several manufacturing concerns producing this type of gearing. Furthermore, it has been found out from actual service conditions that these gears do not wear out in a short space of time due to friction.

No type of machine that has reasonably sound engineering principles will ever be eliminated due to the laws of passing fashion. Each type of reducer fills a niche in the industrial field and will be improved as the years go by with better and stronger materials, more accurate methods of production and scientific means of calculating the horse power capacity of the gears in the reducer.

We have shown that it is a fact that every machine in the reducer class is found to be deficient when attempts are made to rate the unit as the one and only machine to use for all applications. Since we cannot utilize one type of reducer for all applications we must then study the positive and negative advantages of every type of reducer with the thought in mind of becoming familiar with the qualifications of these machines so that it will be possible for us to select a speed reducer which will be best suited for the work.

We will confine ourselves in this paper to enclosed spur, herringbone, worm, spiral bevel and hypoid drives and study each machine in the order named for the desirable and undesirable features. In listing the advantages of these types of machines we should first observe the fact that there are a number of features that are common to all forms of enclosed drives and if these common points of superiority are not segregated from the features peculiar to each type of reducer we never would be able to classify and co-ordinate the existing data so as to make use of it in selecting a machine.

Common Advantages of Enclosed Speed Reducers

The common advantages of all enclosed types of speed reducers may be summarized as follows: All drives of the enclosed type are dust-tight and have the gears running in a bath of oil. They may be driven in either direction of rotation under all speed ratio conditions from the high speed side and are adaptable to a wide range of applications in the industrial field. Transverse strains are eliminated in motor and driven shafts. Radial bearing loads are also minimized on the motor and driven shafts. They decrease the cost of transmitting power and make the possibility of breakdowns a very remote consideration. They are compact and operate more quietly than open gear drives and have a much longer life than these gears due to the enclosed feature. Center distances between the gears and alignment of the shafts is exact and remains in this manner. They also conform in every respect to safety codes.

The preceding list of common advantages eliminates the large number of claims that are often set forth for one particular type of machine and leaves only a few points of real difference between the various forms and types of speed reducers which can readily be set down and arranged for future use in the selection of the correct type of gearing to accomplish a certain work.

Spur Gear Unit

The spur gear reducer or straight line drive, as it has usually been manufactured, has the following positive advantages. It is the most compact type of machine in that large ratios may be accommodated in a very small space. A straight line drive often fits into the available floor area to a much better advantage than any other type of unit due to the fact that the high speed and low speed shafts are concentric and are both the same height from the floor line. Also the high and low speed shafts revolve in the same direction. The spur gear reducer can accommodate very large ratios like 200 to 1 with high efficiency and consequently low power loss. The efficiency of the Jones double type reducer is approximately 87 per cent while the efficiency of the single type unit is near 95 per cent when running under ordinary operating conditions.

The Jones machine does not require any mechanical adjustment in the field and this type of spur gear reducer, due to the fact that there are no planetary or internal gears, therefore, has no overhanging pinions or gears which increase the bearing loads and internal shaft stresses. The gear faces in the Jones machine are wider due to this form of design and construction.

The spur gear reducer is a balanced type of design with respect to the axis in that the radial loads are practically eliminated from the central shaft because of the three point arrangement of the gears around the central pinions.

The spur gear reducer is deficient in the respect that it is impossible for a pair of spur gears to transmit power in a perfect uniform manner due to the intermittent action of their teeth. They are slightly more noisy than helical types of drives and the tooth profiles do not improve in service like the worm gear. The spur gear reducer is not so accessible for repairs and inspection as other types of machines such as the herringbone and worm gear reducers. They also have a great number of working parts to accomplish their ratios of reduction.

Spur gear speed reducers are suitable for medium duty work where the load is fairly uniform, smooth and even. They are particularly adaptable to medium sized motors where large ratios are required to operate the driven machine. Spur gear reducers should not be used for turbine drives due to the intermittent action of the spur gear teeth when transmitting power. Spur gear reducers should not be used for sectional drives where tooth marks would ruin the paper product. The application of these machines in the paper industry would be for conveyors, agitators, elevators and other kinds of driven machines in which the horse power requirements are in the nature of medium duty work.

Herringbone Gear Unit

The positive advantages of a herringbone speed reducer are as follows: The gear teeth when properly proportioned with respect to the helix angles and gear faces overlap in action, i.e., one tooth takes up a portion of the

load before the leading tooth releases its share of the work. This tooth action is similar to a number of narrow faced gears arranged so that each tooth is just a trifle advanced ahead of the preceding tooth. This, of course, gives a simultaneous tooth action across the face of the gears and eliminates the excessive maximum and minimum bending stresses found in spur gear teeth. The load is distributed over a number of teeth so with this type of gearing no one tooth is required to carry the full load like a straight tooth gear. This character of tooth action offers the maximum resistance to gear failure. The overlapping action in herringbone gears results in very even transmission of power and if the teeth are cut in an accurate manner they are quite free from shocks and vibrations. They have considerable more horse power capacity than ordinary type spur gears and possess a very high starting and running efficiency over a wide range of ratios.

The herringbone speed reducer represents a parallel shaft drive and is a very accessible type of machine for both inspection and repairs. This type of machine is suitable for heavy duty work requiring medium ratios and large horse powers.

They may be used in the paper industry for driving rod mills, conveyors, elevators, shake screens, agitators and coal handling equipment. Due to their parallel shaft arrangement they do not apply so well for sectional drives.

The approximate efficiency of single type herringbone speed reducers is well above 95 per cent and we have observed some single type machines in which the efficiency for the single type machine would be 98 per cent. The double type reducer has an average efficiency of approximately 95 to 98 per cent under ordinary working conditions.

The negative advantage of herringbone gears is the difficulty of producing the gear so that both sides are exactly alike with respect to helix angle and tooth position. In the newer type of machines this difficulty has been practically overcome which is evidenced by the fact that we lock all gears in position by means of Timken bearings. Therefore, if these gears were not accurately cut there would be considerable noise developed by the gearing in the reducer accompanied with very rapid wearing conditions.

Worm Gear Unit

Worm gear speed reducers possess the positive advantages of being able to transmit power with a very uniform motion due to the inclined plane principle of tooth action. Worm gears of the modern design have exceedingly strong tooth shapes. The included angle for the teeth of wheel and threads of the worm are approximately 50 to 60 degrees depending on the helix or lead angle of the worm.

The tooth profiles actually improve over a period of time because of the very near straight sided worm threads and the curved shape of the gear teeth. The worm is case-hardened and ground all over including the flanks of the worm threads. The gear material is a 3½ per cent nickel bronze, dry sand cast and chilled and the combination of this material with the hardened and ground surface of the worm threads results in a very low coefficient of friction between the worm and wheel.

There are only two working parts in this reducer, i.e., the worm and gear, regardless of the ratio within wide limits. The parts of the reducer are readily accessible for inspection and repairs. The unit occupies a very small amount of floor space and is of the right angle type, which, of course, is often used to an advantage when the speed reducer must be located close to a building wall or used for the operation of a conveyor.

The worm gear reducer performs its work in the most quiet manner and a great many of these machines have functioned over a long period of years without any repairs.

The worm gear reducer because of the strong tooth shapes employed in the gearing is quite well suited to drives having heavy shock loads. This fact is apparent by their long and continued use in the rear axles of heavy duty trucks.

The negative advantage of worm gears is that they are not of equal high efficiency over the entire ratio range. Ratios of 70 to 1 have an efficiency of approximately 65 per cent and in the low ratio field like 4 or 5 to 1 the efficiency is about 97 per cent. The efficiency is also very much dependent upon temperature conditions and loading on the gear teeth. The low efficiency of the worm gear with large ratios does not seem to hamper their use very much because a large number of these reducers are used to operate slow moving machinery such as assembly conveyors and intermittent operation devices like furnace doors and soaking pit covers.

Worm gear speed reducers may be used in the paper industry wherever a right angle drive is required. Applications in this field include conveyors, elevators, screens, pulpers, thickeners, rewinders and pumps. They may be used for sectional drives with good success but at the present time the worm gear drive is not used as much as hypoid gearing which according to the paper machine builders is very much more suitable and adaptable to the operation of the paper machines proper.

Spiral Bevel and Hypoid Gears

The spiral bevel and hypoid gears turn corners in a right angle way, similar to the worm gear reducer. The gear teeth engage with one another in a gradual and even manner because they are cut with a spiral angle which, of course, results in an overlapping action on the gear teeth.

There are a large number of teeth in contact at one time and since they have a certain amount of angularity the teeth do not strike in full contact like the straight bevel and spur gears. The load per tooth is very much less than straight bevel gearing and even though there is a reduction in tooth section this condition is more than compensated for because the entire load does not all fall on one tooth but is distributed over a number of teeth similar to the herringbone gear. Thus several teeth in contact carry a portion of the transmitted load which results in offering the greatest amount of resistance to wear and breakage of the teeth.

It is interesting to note that the teeth of spiral bevel gears are symmetrical on both sides and that the hypoid gear teeth have different tooth profiles on opposite sides of the gear tooth. This difference in tooth profile is the result of the method used in generating the teeth and varies according to the offset of the pinion and gear shafts. Hypoid and spiral bevel gears have the same efficiency as well cut straight bevel gearing, but run in a more quiet and even manner because of the continuous tooth action on the pitch line of the gears.

Spiral bevel and hypoid gears have proved their worth and value in the automotive industry where they have been used as final drives in the rear axles of automobiles and trucks. It is in this field of industry that they have been developed to a high degree of accuracy and perfection.

A large number of spiral bevel gear speed reducers have been used in the paper industry to operate sectional drives and have given very satsifactory service in this field. The principal objections to this type of drive is that the two shafts of the reducer intersect or cannot pass

one another and that it is impossible to use a large enough bearing on each side of the high speed pinion to compensate for the overhung loads due to cutoff clutch couplings.

It is for this reason that paper mill machinery builders are now advocating the use of the hypoid drive in place of the spiral bevel units. The offset position of the shafts in the hypoid reducer permits the use of large bearings on the high speed shaft, also making it possible to drive several machines from the one shaft.

The hypoid gear drive permits the use of a cutoff clutch coupling which is very desirable in sectional paper mill units and the large taper cone pulley may be keyed to its shaft, thus eliminating the loose pulley bearings which are difficult to keep in proper condition. The larger diameter pulleys and clutches can be used with the hypoid unit as the pinion is located above the center of the gear thereby gaining more distance between the pinion shaft and the reducer base. Therefore, the chief advantage of the hypoid gear over the spiral bevel gear is due to the fact that both the high speed and low speed shafts pass one another and that large bearings may be used on the high speed shaft to compensate for overhung loads.

The hypoid gears combine the smooth rolling action of spiral bevel gear drives and the uniform and smooth sliding action of the worm gear. There is an additional sliding action in this type of gearing which is in the direction of the shaft axis. This extra sliding action as in worm gearing tends to smooth down slight irregularities on the contacting tooth surfaces, consequently the hypoid gears improve their gear contact after being under load. It has also been found that a certain amount of sliding action helps maintain an oil film between the lubricated surfaces of the gear teeth. This statement has also been very well demonstrated and proved in the case of a worm and wheel.

There are a few negative advantages which apply to the spiral bevel and hypoid gears but since these disadvantages are of a highly technical nature and somewhat controversial they cannot well be included in this paper. It will suffice to state that both types of gearing require very accurate alignment to secure a proper running condition when working with a load on the gear teeth. There is, theoretically, only one relative position in which correct operation of the gearing is possible and the permissible variation from this position is extremely small, being a matter of a few thousandths of an inch.

Selecting the Type of Reducer

We have now set down all the advantages peculiar to the different types of reducers discussed at this meeting and in order to select the proper speed reducer for your work there are three major points to be considered which are, *floor space, load requirements* and *ratio of reduction.* We have no common points of superiority in the equation as these features are purchased with all enclosed drives. A simple analysis of the few distinctive features given in the preceding paragraphs will enable anyone to select the type of reducer best suited to the requirements of the driven machine.

Summarizing the principal advantages of the spur, worm and herringbone reducers so that they may be used quickly and efficiently with the major points of consideration given in the preceding paragraphs we have the condensed and leading features of each type of reducer as follows:

Spur Gear Speed Reducer

The uses include medium duty work where the load is fairly smooth, even and uniform. They are suitable for medium sized motors where large ratios are required.

The advantages are the straight line drive feature, most compact, secures extremely large ratios with high efficiency at a low power cost, never requires adjustment in the field.

Herringbone Speed Reducer

The uses include heavier duty work requiring medium ratios where large motors are used, suitable for shock loads and reversing service.

The advantages are gear tooth construction, affords maximum resistance to breakage and produces a smoother transmission of power than the spur gear, extremely accessible for inspection or change of ratio, high starting and running efficiency.

Worm Gear Speed Reducer

The uses include installations requiring a right angle drive, more desirable and efficient when small ratios are required but often used to advantage for large ratio work, silent in operation, especially efficient on heavy, shock and peak loads.

The advantages are high efficiency at lower ratios, no slippage, smoothest drive, has strongest tooth shape known to gearing, has fewer parts than other reducer types, noiseless, worm generates correct tooth formation so that the reducer actually improves with use.

It is fitting and very practical to close this discussion with an approximate tabulation showing the relative cost of spur, worm and herringbone reducers with any gear ratio from 3 to 1 and up to 70 to 1. The horse power transmitted is from 1 to 100 and at a motor speed of 900 r.p.m. The spiral bevel and hypoid units being used mostly on the sectional drives are not listed on this chart. It is interesting to note that in the lower horse power values that the worm gear reducer apparently is very much less in cost than any other type of speed reducer, while in the larger horse powers their place is taken by other types of machines.

CHART SHOWING APPROXIMATE RELATIVE COST OF SPUR, WORM AND HERRINGBONE REDUCERS

Horse Power	Type of Reducer	Ratio of Reduction 3	5	10	15	20	30	50	70
1	Spur	...	...	...	...	...	...	...	117
	Worm	...	35	35	53	53	70	70	116
	Herringbone	30	58	81	85	92	92	122	122
5	Spur	...	96	96	117	144	144	192	192
	Worm	...	70	88	116	116	147	221	291
	Herringbone	81	105	130	126	126	151	175	245
10	Spur	...	126	165	192	192	192	240	330
	Worm	...	116	147	182	182	221	532	532
	Herringbone	105	130	161	151	175	245	298	298
15	Spur	...	165	216	192	240	240	330	635
	Worm	...	147	182	221	291	532	735	980
	Herringbone	105	161	200	175	245	298	420	490
20	Spur	...	216	415	240	330	330	635	635
	Worm	...	182	221	291	368	532	980	1611
	Herringbone	130	161	200	245	298	420	490	700
30	Spur	...	415	415	330	635	635	635	900
	Worm	...	221	368	532	532	980	1745	...
	Herringbone	161	200	252	298	298	490	700	700
40	Spur	...	415	525	635	635	635	900	900
	Worm	...	291	532	735	980	1350	...	...
	Herringbone	161	200	371	420	420	490	700	945
60	Spur	...	525	...	900	900	900	...	...
	Worm	...	532	735	980	1611	1745	...	...
	Herringbone	200	252	371	490	490	700	945	945
80	Spur	...	...	...	...	...	...	...	...
	Worm	...	735	980	1745	1745	...	...	...
	Herringbone	252	371	500	700	700	945	945	1530
100	Spur	...	...	...	...	...	...	...	...
	Worm	...	980	1745	...	...	...	...	...
	Herringbone	252	371	500	945	945	945	1530	2500

Note: Speed reducers selected for continuous service conditions.

Morterud Sulphite Circulation System

Herman S. Kaier, of 230 Park Avenue, New York, has just issued a circular describing the Morterud Sulphite Circulation System, for which he is the representative for the United States and Canada. Copies may be obtained upon application.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

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Paper Specialties

Coating Machine. Lynn B. Case assignor to John Waldron Corp. U. S. pat. 1,873,821, Aug. 23, 1932.—The coating is smoothed out, while still wet, by means of a doctor roll which is driven at a much lower peripheral speed than the speed of the coated web and which is moistened with a solvent of the coating material.—A. P.-C.

Stencil Sheets. W. Koreska. Brit. pat. 350,976, Jan. 19, 1929.—A coating composition for stencil sheets comprises a cellulose compound containing at least one fatty acid radical with more than ten carbon atoms, such as a mixed ester, with other usual ingredients.—A. P.-C.

Coated Paper for Stereotype Mats. Arlie W. Schorger assignor to Burgess Cellulose Co. U. S. pat. 1,836,731, June 21, 1932.—In forming a pervious surface on a stereotype mat, the mat is faced with an aqueous suspension of a salt of a higher fatty acid, such as sodium stearate, and a hydrated mineral such as bentonite which loses its water on "scorching", and the mat is then subjected to "scorching".—A. P.-C.

Reclaiming Used Vegetable Parchment Tympans. John R. Dufford assignor to The Paterson Parchment Paper Co. U. S. pat. 1,858,437, May 17, 1932.—Used vegetable parchment paper tympans are subjected to the action of a chemical agent which reacts with the constituents of the ink and reduces the latter's adhesive capacity. The surface of the treated parchment paper is subjected to a physical wiping action of such limited intensity as to remove the loosened ink from the crevices of the faces of the tympans while preserving the parchmentized fibrous character of the surface of the de-inked tympan. The de-inked material is washed and calendered.—A. P.-C.

Bituminous Pulps Suitable for Sheet Roofing Material. Earl P. Stevenson and Harry A. Buron assignors to The Richardson Co. U. S. pat. 1,859,414, May 24, 1932.—Wet fibrous material composed of bitumen and fiber such as rag stock is mechanically mixed in a closed compartment, under pressure, and the material is then transferred to another mixer where it is reduced to a pulp by mechanical treatment and hydration with water.—A. P.-C.

Composite Fibrous Building Material. Emil C. Loetscher. U. S. pat. 1,862,688, June 14, 1932.—A relatively thick mat of moist material such as wood or cornstalk pulp is compressed while heated to remove a portion of the moisture and reduce the material to substantially its final form and thickness; the compression is released and the material is further dried, and is then again compressed.—A. P.-C.

Reinforced Building Paper. Herbert A. Anderson assignor to American Reinforced Paper Co. U. S. pat. 1,870,215, Aug. 9, 1932.—A multiple-ply, waterproof, building paper, which will not shrink appreciably when exposed in a stretched condition to varying weather conditions, comprises a composite fabric formed of two sheets of paper creped or crimped to render them elastic, and provided with unspun reinforcing fibers secured by a waterproof adhesive, the fibers extending both longitudinally and transversely of the sheet. The creped sheets, when exposed to the weather, can contract and expand freely under the action of the weather, while the reinforcing fibers maintain the overall dimensions of the composite sheet substantially constant.—A. P.-C.

Material Suitable for Roofing, Etc. Albert C. Fischer assignor to The Philip Carey Manufacturing Co. U. S. pat. 1,861,408, May 31, 1932.—A material such as roofing felt is c ated with a mixture of dense waterproofing mastic and slow-drying, lastingly adhesive mastic, such as two different asphaltic compositions.—A. P.-C.

Forming Shingles of Materials such as Fiber, Paper, Rosin, Clay, Lime and Cement. George B. Stryker, Jr., assignor to The Weatherproof Products Co. U. S. pat. 1,860,060, May 24, 1932.—Various details of operation are described for forming sheets of fiber such as old paper and cotton stalks and a binder such as rosin and uniting them with another layer formed of fiber, clay, lime and cement.—A. P.-C.

Method of and Apparatus for Making Strip Shingles. Frederick C. Overbury assignor to The Patent and Licensing Corp. U. S. pat. 1,872,603, Aug. 16, 1932.—A series of transverse slots are cut in a moving web of roofing felt, which is then slit to form a pair of strips each having a series of tab-forming notches in one edge. A liquid waterproof coating, such as asphalt, is deposited on the strips, and the excess coating is removed by a diagonally placed doctor, the portion of the doctor which engages the notched margin of each strip being beyond the portion which engages the unnotched margin.—A. P.-C.

Waterproofed Reinforced Building Paper. George E. Gibbs assignor to American Reenforced Paper Co. U. S. pat. 1,871,602, Aug. 16, 1932.—A multiple-ply building paper that will not shrink upon exposure to weather sufficiently to cause the marginal edges of the paper to pull loose from the structure to which it is secured, comprises two sheets of moisture-pervious paper secured together by a waterproof layer of asphalt and reinforced by straightened unspun fibers embedded in the asphalt. A thin water-repellent coating consisting of a mixture of asphalt and paraffin is applied to the outer face of the ply that is exposed to the weather.—A. P.-C.

Method of and Machine for Coating Roofing Units. Chester R. MacDonald assignor to The Patent and Licensing Corp. U. S. pat. 1,873,209, Aug. 23, 1932.—The shingles or shingle-strips are suspended vertically and are

carried over and in contact with a roll which applies molten asphalt to cover the entire butt-end of the elements. While the asphalt is still in molten condition, the elements are made to drag over a conveyor covered with loose grit to surface the coated portions of the shingles. —A. P.-C.

Method of and Apparatus for Finishing Roofing Elements. Frederick C. Overbury assignor to The Patent and Licensing Corp. U. S. pat. 1,873,213, Aug. 23, 1932. —The elements are advanced in succession, edgewise in an upright position, with the butt-edge down; a liquid coating is applied to one face and to the butt-edge of each element; granular surfacing material is projected against the coated face and is pressed against the coated butt-edge.—A. P.-C.

Sheet Constructional Material. Albert C. Fischer assignor to The Philip Carey Manufacturing Co. U. S. pat. 1,863,104, June 14, 1932.—Sheets are molded from a mixture of fiber and dense waterproofing mastic material intimately commingled, and one exposed face of the sheet is coated with a slow-drying adhesive which is lastingly adhesive and sticky to the touch. Sheets of this character are suitable for roofing, etc.—A. P.-C.

Machine for Making Asbestos-Cement Shingles. Arthur B. Saunders assignor to Johns-Manville Corp. U. S. pat. 1,859,986, May 24, 1932.—Shingles are formed from an asbestos-cement slurry on a cylinder board-machine. One or more suction boxes are provided above the felt to facilitate the transfer of the shingles from the cylinder to the felt, and a spray pipe is provided inside the cylinder to clean the wire covering.—A. P.-C.

Apparatus for Making Prepared Building Products. Thomas Robinson assignor to Lancaster Asphalt, Inc. U. S. pat. 1,863,880, June 21, 1932.—A light web of unsaturated felt is given a coating of asphalt on one surface and a layer of granular surfacing material is applied to the coating. A relatively thick layer of mastic (e.g., a mixture of a bituminous compound such as asphalt and granular material) in more or less fluent condition is applied to the uncoated side of the felt, the sheet is cooled and two such sheets are united with the mastic layers adjacent. The combined sheets are subjected to shaping and cutting operations to unite them into a single element of the desired form and size.—A. P.-C.

Apparatus for and Method of Making Deckle Edged Paper. George W. Bicking. U. S. pat. 1,858,131, May 10, 1932.—Paper sheets having four deckle edges are obtained by forming a continuous web with two deckle edges in known manner on a fourdrinier machine, cutting the web into individual sheets on the fourdrinier wire by means of a nozzle which discharges a suitable fluid (preferably water) on the web and which is moved diagonally across the machine so that the cut is perpendicular to the length of the web.—A. P.-C.

Strong Porous Paper and Process of Making Same. Frederick Riebel, Jr., assignor to Air-Way Electric Appliance Corp. U. S. pat. 1,854,427, April 19, 1932.—A paper having a high porosity to air and a high tensile strength (suitable for dust-collecting bags in vacuum cleaners) is produced from long-fibered (preferably kraft) stock by giving a light beating just sufficient to form an evenly flowing suspension, reducing the shake or using a very short shake frame on the paper machine, and using two or four times as much suction as usual at the suction boxes.—A. P.-C.

Composition for Stereotype Matrices. R. Junghanel and H. Gross. Brit. pat. 358,474, June 7, 1930.—Matrices suitable for cold embossing are formed of cardboard, asbestos board and the like, coated with a composition of casein, mineral powder such as slate meal, wax, glycerin, nitric acid, alcohol, fine metal powder of high melting-point such as bronze, and water. A preliminary coating or pore-filling is first applied formed of glue, wax, nitric acid, metal powder such as bronze, and water.—A. P.-C.

Treatment of Artificial Leather Sheetings and Product of Same. Roger B. Hill and John A. Fogarty assignors to Brown Co. U. S. pat. 1,862,749, June 14, 1932. —Dry, rubber-impregnated fibrous sheet material, such as felt, cloth or paper, is wetted with water containing a water-soluble dye, mechanically worked while wet to soften, and again dried.—A. P.-C.

Impregnated Paper Electric Insulation. Henry L. Ward assignor to Western Electric Co. U. S. pat. 1,861,945, June 7, 1932.—Highly absorbent paper sheets free from electricity-conducting substances are impregnated with rubber and a vulcanizing agent and are heated to effect partial vulcanization; a number of the sheets are assembled and subjected to further heat and pressure to complete vulcanization.—A. P.-C.

Machine for Making Transparent Papers. Eduard M. Kratz assignor to Marsene Products Co. U. S. pat. 1,862,541, June 14, 1932.—This is an improvement on Kratz' U. S. pat. 1,650,585, of Nov. 22, 1927. It provides means for the transverse tensioning or stretching of the carrier belt to prevent it from wrinkling as it conveys the sheet through the chilling or congealing chamber. —A. P.-C.

Non-Bleeding Crepe Paper. Gardner R. Alden and Thomas Nelson assignors to Dennison Manufacturing Co. U. S. pat. 1,863,813, June 21, 1932.—A sheet of tissue paper is treated with a creping bath containing a dye, an adhesive protective colloid such as glue, and a fixing agent or mordant, and the treated sheet is subjected to a creping operation. Several formulas are given in the specifications.—A. P.-C.

Paper. Carl S. Hamersley assignor to The Hamersley Manufacturing Co. U. S. pat. 1,870,681, Aug. 9, 1932.—The invention covers a flexible paper distorted at intervals out of the plane of the surfaces of the paper to provide corrugations, with a similarly distorted flexible paper strip superposed along an edge of the first sheet and extending across the corrugations of the former.—A. P.-C.

Safety Paper. Viktor Bausch and Adolph Sohroth assignors to Felix Schoellers & Bausch. U. S. pat. 1,864,116, June 21, 1932.—Paper is made containing a "carboxylic hydrocarbon" such as pyrogallolcarboxylic acid and a reagent such as pentagalloyl-glucose, the color of which is sensitive to acids.—A. P.-C.

Water-Resistant Paper. Augustus E. Maze, assignor to Manson Chemical Co. U. S. pat. 1,863,867, June 21, 1932.—Paper pulp is treated in the beater with an aqueous dispersion of paraffin or other wax and an oil such as "Marcol" or "Nujol" of substantially odorless, tasteless and non-foaming character.—A. P.-C.

Material for Milk Bottle Caps. A. S. Harper. Brit. pat. 347,764, Feb. 4, 1930.—Caps are formed of highly bleached and glazed paper made from sulphite pulp and coated with a vegetable adhesive such as a starch or gum product and may be provided with a liner free from adhesive material.—A. P.-C.

Special Paper for Wrapping Pastry, Etc. Robinson & Sons, Ltd., and V. O. Robinson. Brit. pat. 349,139, Feb. 28, 1930.—A compressed cellulose wadding such as cotton is carried by a tougher backing such as waterproof paper to which it is secured by an adhesive.—A. P.-C.

Manufacture of Transparent Paper. Sylvester Boyer assignor to S. D. Warren Co. U. S. pat. 1,862,656, June 14, 1932.—The dried web is moistened with water con-

taining preferably not more than 8 per cent of glycerine (or a glycol, mannitol, etc.), the moisture content of the paper being brought to about 30 per cent on the dried paper. It is then passed through a stack comprising a number of heated all-steel rolls, but containing also at least two (and preferably three) soft rolls (e.g., felt or paper covered) which are contiguous to one another. The position of these soft rolls relatively to the hard rolls and the degree of heating of the latter are such that the sheet contains about 10 to 12 per cent moisture when it reaches the soft rolls and about 6 to 7 per cent when it leaves the stack.—A. P.-C.

Protecting Means for Rolls of Paper. Edward L. McDevitt assignor to Frank F. Barham. U. S. pat. 1,859,521, May 24, 1932.—The roll is wrapped in a sheet of paper. A protective cap for the end is formed of a number of superimposed layers of paper secured together by an adhesive whcih is adapted to harden. The outer edge of the cap is crimped and bent over the end of the roll, and secured to the wrapper by means of adhesive. —A. P.-C.

Paper Cups, Dishes, Etc. R. Leibfarth. Brit. pat. 358,024, Dec. 12, 1929.—Layers of papers are used which are held together and stiffened by an intervening layer of acid free casein.—A. P.-C.

Impregnating Articles such as Pulp Conduits or Tubing with Pitch or the Like. Milton O. Schur assignor to Brown Co. U. S. pat. 1,864,674, June 28, 1932.—Wet articles such as tubes made of pulp are subjected to a bath of hot impregnating medium such as molten pitch under a pressure higher than the vapor pressure of water at the temperature of the impregnating medium, and the pressure is slowly lowered while the impregnating medium is maintained at the elevated temperature.—A. P.-C.

Barrel Making Machine and Method. Alexander R. Walton. U. S. pat. 1,853,102, April 12, 1932.—A freshly-made undried sheet of pulp is shaped into barrel staves or the like by passing through pairs of suitably shaped rolls; it is dried while being conveyed on surfaces shaped to correspond to the shaped sheet, and is then cut into individual staves which are subjected to suitable finishing operations.—A. P.-C.

Manufacture of Wall Board. George M. Thompson assignor to Gypsum, Lime and Alabastine, Canada, Ltd. U. S. pat. 1,859,853, May 24, 1932.—In the manufacture of paper-lined gypsum board, the width and thickness of the layers of adhesive used to hold the liners to the gypsum core are adjusted and maintained constant by regulating the pressure under which the adhesive is supplied to adhesive-applying rolls and also the distance between these rolls and the liners.—A.P.-C.

Machine for Making Double-Faced Corrugated Paper Board. Louis H. Schroeder and Joshua Wagner assignors to Progressive Corrugated Paper Machinery Co., Inc. U. S. pat. 1,858,375, May 17, 1932.—Double-faced corrugated paper board is made without reversing the sheet between the application of the two facing sheets. The central web is corrugated, a top facing sheet is applied while the corrugated sheet passes around the top corrugating roll, a certain amount of slack is allowed to accumulate between the two facing-applying mechanisms, and the second facing sheet is applied to the under side of the single-faced sheet.—A.P.-C.

Stencil Sheets. F. May. Brit. pat. 347,652, July 8, 1929.—A porous support such as yoshino paper carries two or more layers of different colors so that when the stencil is cut the color of the characters contrasts with that of the sheet and facilitates reading the stencil. Various mixtures are specified for the colored layers containing dyes, pigments, etc., and the coloring may also be effected by the action of light or electrolytically.—A.P.-C.

Manifolding Sheets. John Sherman. U. S. pat. 1,-864,097, June 21, 1932.—Record sheets are formed with a coating of transfer pigment on the back and a coating of cohesive sealing material such as paraffin overlying the pigment and forming a distinct immiscible stratum.—A.P.-C.

Method of and Apparatus for Waxing Paper. Van Hamm Wilshire assignor to The Specialty Papers Co. U. S. pat. 1,866,689, July 12, 1932.—A relatively light coating of wax is applied to one or both sides of the web which is then passed around two large heated rolls to make the wax penetrate into and impregnate the body of the paper. A second surface coating of wax is then applied to one or both sides of the paper, which is passed successively over polishing rolls and cooling rolls and finally reeled. The whole operation is continuous and the machine is constructed so that either surface of the paper may be coated, as desired.—A.P.-C.

Glazing Coated Papers. Champion Coated Paper Co. Fr. pat. 673,032.—A brilliant glossy surface is produced on coated paper without calendering by passing it around a heated, highly polished chromium-plated roll.—A.P.-C.

Light Porous Structural Material. Walter R. Kappes assignor to The Aluminum Co. of America. U. S. pat. 1,865,192, June 28, 1932.—A pulped material such as cellulosic or asbestos fiber is mixed with about 2 to 3 per cent of aluminum powder and a suitable proportion of an alkaline reagent such as milk of lime to produce a light porous product. Use of zinc and magnesium is also mentioned.—A.P.-C.

Prepared Roofing and Means for Making Same. Henry C. Koch. U. S. pat. 1,868,751, July 26, 1932.—A web of roofing material is fed continuously across the bed of the machine; a colored, relatively wide line defining the edges of the shingles is marked approximately one-quarter and three-quarters across the width of the sheet by spraying or printing; the sheet is slit down the center, and each strip is cut through the center of the colored line so that the individual strips have complementary tabs and recesses, each edge having a shaded portion.—A.P.-C.

Waterproofed Heat-Insulating Material. Allan B. Merrill assignor to The B. F. Goodrich Co. U. S. pat. 1,-858,680, May 17, 1932.—A rough-surfaced fibreboard having unfilled interstices is coated on one face with an adherent waterproof film of vulcanized rubber which closely conforms on its outer side to the irregularities of the fiberboard surface, the fibers of which retain their original arrangement.—A.P.-C.

Constructional Material. Albert C. Fischer assignor to The Philip Carey Manufacturing Co. U. S. pat. 1,863,-104, June 14, 1932.—A sheet molded from a mixture of fiber and dense waterproofing mastic is coated, on the side to be exposed to the weather, with a slow-drying adhesive which is lastingly adhesive and sticky to the touch. —A.P.-C.

Winding Machine for Roofing Paper. Henry R. Wood assignor to The Patent and Licensing Corp. U. S. pat. 1,861,374, May 31, 1932.—A guide flap, supported on pivoted counterweighted arms, is provided between the feed rolls and winding mandrel. As the roll builds up, the flap assumes a downwardly inclined position, and when it is necessary to remove a portion of the web being wound, the end of the strip may be tucked between the convolutions which have already been wound.—A.P.-C.

Paper. Compaignie Française de l'Iode et de l'Algine. pat. 729,028, March 10, 1931.—Paper having high breaking and bursting strength is obtained by adding, in the

beater or in the mixing chest, 4 to 5 per cent of aglin, in the form of sodium, potassium, ammonium, aluminum or magnesium alginate.—A.P.-C.

Laminated Product from Cellulosic Material and Synthetic Resin. Harry C. Rohlfs assignor to General Electric Co. U. S. pat. 1,866,372, July 5, 1932.—Material such as paper or cloth is superficially coated with an alkyd resin in the B-stage, and layers of such coated material are superposed and united under heat and pressure. —A.P.-C.

Moistureproof Flexible Cardboard Packing Material. P. B. Burchardt. Brit. pat. 354,829, Nov. 16, 1929.—The material is made of three or more layers united by pressure after treatment with asphalt, tar or the like, applied by immersion or by partly immersed rollers. Various details of manufacture are given.—A.P.-C.

Duplicating Record Sheets. John Sherman and Albert W. Metzner. U. S. pat. 1,865,708, July 5, 1932.—A record sheet carries a coating of transfer pigment on its back over which is placed a sealing coat of hard adherent material such as shellac or a hard wax to prevent smudging.—A.P.-C.

Notes on the Manufacture and Composition of Filter Papers. D. C. M. G. I. P. Papeterie 54, 814-818 (Aug. 10, 1932).—A brief description of the manufacture, properties and composition of filter paper.—A.P.-C.

Manufacture of Paper in Europe at the Present Time. Anon. Mon. Papeteries Belge 12, 399-408 (June 1932).—An outline of the chief lines of paper making machinery built by the Voith company.—A.P.-C.

Process of Making Silk Fiber Sheets. Nao Kawaguchi. U. S. pat. 1,862,019, June 7, 1932.—Dried silk cocoons are soaked for some time in cold water, placed in a cloth bath, allowed to drain, boiled in sodium bicarbonate solution, then in water for about 2 hours and washed with cold water. They are then removed from the bag and turned inside out; foreign material is removed; the cocoons are finally piled into sheets of even thickness, which are moistened with tincture of benzoin and smoothed out with a brush.—A.P.-C.

Cornstalk Fiber Composition Suitable for Making Molded Sign Letters, Etc. Samuel A. Gill assignor of one-half to Zac D. Dunlap and Harry B. Dunlap. U. S. pat. 1,866,204, July 5, 1932.—A material suitable for making articles which are hard, light, waterproof, non-conducting and capable of being worked like wood is formed of ingredients such as cornstalk or cane fiber mixed with celluloids, acetone, asbestos fiber, sawdust and gold size. —A.P.-C.

Power House

Economic Boiler Pressure in Back Pressure Plants. H. Frilund. Pappers Trävarutid Finland 14, no. 10:373-374, 376-378 (May 31, 1932); Bull. Inst. Paper Chem. 2:313.—It is impossible to determine a generally applicable most economic boiler pressure, as each case must be treated individually. The different factors which play a role and affect the results are shown by an example, the calculations of which are taken from the Kymmene mill in Finland.—C. J. W.

The Steam and Power Problem of the Korsnäs Pulp Mills. L. Malm. Svensk Pappers-Tidn. 35, no. 7:235-236, 239-241; no. 8:260-264, 267; no. 9:299-300, 303-304, 309-310; no. 10:336-338, 341-342, 347 (Apr. 15, 30, May 15, 31, 1932); Bull. Inst. Paper Chem. 2:313.—A very detailed account of the complete modernization program of the steam power plant of the complete Korsnäs pulp mills in Sweden. Many illustrations.—C. J. W.

Reconstruction of the Heat Installations and of the Condensate Recovery Plant in the Kymmene Mills. Pappers-Trävarutid Finland 14, no. 10:378, 380-381 (May 31, 1932); Bull. Inst. Paper Chem. 2:313.—Greater savings can often be made by checking apparently small heating losses than by decreasing the production cost of heat and steam. This applies specially to older mills. The Kymmene Aktiebolag replaced part of its high pressure steam heating installation by low pressure steam heating and installed a system for utilizing the entire condensate, pure and impure. About 50 percent savings in steam resulted and the fuel consumption decreased by 5 percent.. —C. J. W.

Preparation of Feedwater in the Powerhouse. W. Osenberg, Svensk Pappers-Tidn. 35, no. 3:99-100; no. 4:121-122, 127-128, 131 (Feb. 15, 29, 1932); Bull. Inst. Paper Chem. 2:240.—Feedwater conditions for modern high pressure boilers are discussed, the latest constructions for distilling and preheating water are described and the complete layout for a feedwater plant in connection with a pulp mill is given.—C. J. W.

The Value of Boiler Tests in Industrial Plants. Robert C. Denny. Paper Ind. 14, 357-358 (Aug. 1932).—A brief discussion.—A.P.-C.

Rain Water in the Paper Industry. G. M. Papeterie 54, 762-770 (July 25, 1932).—It is suggested that rain water could be advantageously collected on mill roofs and used for preparation of size, boiler feed and for dissolving dyes.—A.P.-C.

Flow Meters and Recorders in the Paper Mill. H. C. Macaulay. Paper Trade J. 95, No. 6, 30-31 (Aug. 11, 1932).—A brief discussion of the advantages of various kinds of flow meters and recorders in the boiler plant and sulphite mill.—A.P.-C.

Miscellaneous

The Reduction of Sulphur-containing Compounds in Wood Pulp and Paper Manufacture. T. D. Beckwith and J. R. Moser. J. Bact. 24:43-52 (1932); C. A. 26:4714. —Blackening during the course of manufacture of pulp stock is due to the accumulation of black material in and on the equipment used in the industry, produced by *Microspora desulphuricans.* This organism reduces sulphur-containing compounds with the production of hydrogen sulphide, which unites with iron to form sulphide. The necessary sulphur and iron are present in the wood used in the process but sulphite may be an additional source of sulphur and iron piping a source of iron. The water supply is the course of the organisms. The cultural reactions of eight pure strains were studied. They vary somewhat in carbohydrate reactions.—C. J. W.

Institute of Swedish Cellulose Technic and Wood Chemistry at the Royal Technical High School. Erik Hägglund. Svensk Pappers-Tidn. 34:827-833 (1931).—Descriptive.—C. J. W.

The Treatment of Paper Mill W[illegible]e Waters. G. E. Landt. Paper Trade J. 95, No. 7, 29-32 (Aug. 18, 1932). —A brief discussion of the problem of the treatment of pulp and paper mill waste, more particularly of rag boiler waste, from which it is concluded that it is as yet impossible to produce a rag boiler effluent which will equal the original river water in purity, and that no general answer can be given to the problems involving the cooking of rags and rope and the deinking of papers.—A.P.-C.

United States Patents on Paper Making. Second Quarter, 1932. Clarence J. West. Paper Trade J. 95, No. 5, 34-37 (Aug. 4, 1932).—A list, in numerical sequence, of patents relating to pulp and paper making issued at Washington in April, May and June, 1932, with brief abstracts in some cases.—A.P.-C.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Melrose, Mass.—The Hersey Paper Company, Medford, Mass., manufacturer of waterproof and other processed papers, has concluded negotiations for the purchase of three factory buildings, totaling about 30,000 square feet of floor space, on site of approximately 48,000 square feet of land, on Pleasant street, Melrose, near the Malden City line. The structures heretofore have formed part of plant of the Boston Rubber Shoe Company and are assessed for tax purposes at $40,000. Purchasing company will make a number of improvements and will occupy at once for new plant, increasing former production. It is understood that operations will be concentrated at the new location in the future.

Pulaski, Va.—The Virginia Paper Box Company, referred to recently in these columns as at Newport News, Va., will be located at Pulaski, where the company has leased the Keister Building on First street north, and will occupy for new plant. Equipment will be installed at once and it is proposed to have the unit ready for service in January. This will be the southern operation of the B. Engel Paper Box Company, 123 Sussex avenue, Newark, N. J., previously reported as leasing property at Pulaski. B. Engel is president of both companies. New factory will manufacture a complete line of paper boxes and containers, giving employment to about 25 persons for initial operations.

Natchez, Miss.—The Mississippi Pulp Corporation, Natchez, has taken title to the local mill of the Mississippi Match Company, now in receivership, as well as certain other local property of the company. A reported consideration was given of about $72,500 for the holdings. The purchasing company is said to be planning to occupy the mill for a new plant for pulp production, beginning operations in near future.

Emeryville, Cal.—The Paraffine Companies, Inc., 475 Brannan street, San Francisco, Cal., manufacturer of building papers, fiberized and composition stocks, etc., is said to have broken ground for a new addition to its mill, and will proceed with superstructures at an early date. Expansion is reported to cost close to $100,000, with equipment.

Cloquet, Minn.—The Berst-Forster-Dixfield Company, Grand Central Terminal, New York, N. Y., manufacturer of paper goods and allied products, has work well under way on new plant units at Cloquet, consisting of three two-story and basement structures, 102 x 226 feet, 102 x 145 feet, and 81 x 102 feet. It is proposed to proceed with machinery and equipment installation at early date, having the plant ready for service in a month or so. The project is estimated to cost about $250,000, with equipment. The James Lec Company, 211 South Eleventh street, Minneapolis, Minn., is general contractor. Company also has work nearing completion on new additions to paper mill at Plattsburg, N. Y., and likewise proposes to have ready for operation early in 1933. This consists of two main three-story buildings, 153 x 210 feet and 40 x 300 feet, with one-story filtration plant unit, and will represent an investment of approximately $200,000, including machinery. The same contractor noted is in charge. Homan F. Hallock, Oswego, N. Y., is architect and engineer for both projects.

Kansas City, Kan.—The Sealright Company, Inc., Fairfax and Rickel streets, manufacturer of paper caps, etc., a subsidiary of the Oswego Falls Corporation, Fulton, N. Y., has concluded arrangements with the Union Pacific Railroad Company, Omaha, Neb., from which present factory unit is leased, to proceed with immediate erection of new addition, and for which general building contract has been let to the W. K. Martin Construction Company, Dwight Building, Kansas City, Mo. It will occupy adjoining site and will be one-story, 70 x 153 feet. New unit will be used primarily for the manufacture of paper cans, a new branch of production at this point, and is reported to cost close to $40,000, including equipment. Contract for electrical installation in new building has been awarded to the W. T. Foley Electric Company, 756 Minnesota avenue, Kansas City.

Lee, Mass.—Recent fire at the local mill of the Eaton, Dikeman Company, manufacturer of blotting and other absorbent paper stocks, etc., included a group of six buildings, consisting of finishing department, boiler plant, storage unit, rag storage building, machine shop and office. The storage building was filled with finished stock. As previously announced, the company contemplates rebuilding plant in near future and will replace the different units noted. The total loss is reported at close to $200,000, exclusive of paper in storage. E. A. Sitzer is vice-president, secretary and treasurer.

Roanoke, Va.—The Viscose Company of America, Marcus Hook, Pa., is developing increased production schedule at its local cellulose rayon mill, and plant is now running close to normal schedule, on seven-day weekly basis. There are about 4200 employees on the payroll at the present time.

Newark, N. J.—The Celluloid Corporation, 290 Ferry street, is operating on an increased production schedule in its transparent wrapping material division, manufacturing a cellulose acetate product, known as "Protectoid." Regular working quota is being employed. A large part of output is for the wrapping of food specialties.

Ocean Falls, B. C.—The Pacific Mills, Ltd., Vancouver, B. C., is said to have plans maturing for extensions in mill at Ocean Falls, for production of increased raw material for fibre container plant at Vancouver, where an expansion program also will be carried out. At the paper mill, it is proposed to install additional equipment and

carry out certain modernization in existing equipment. A new addition will be built to the Vancouver converting plant. The entire project is reported to cost approximately $350,000, with machinery. Company is a subsidiary of the Crown Zellerbach Corporation, 343 Sansome street, San Francisco, Cal.

New Companies

Kearny, N. J.—The Adolff Bobbin Company, Inc., has been incorporated with a capital of $10,000, to manufacture pulp products. The incorporators are William J. Topken, Woodcliff, L. I., and E. H. Tietz, Forest Hills, L. I. Company is represented by Schnitzler, Topken and Farley, 17 Battery place, New York, N. Y. attorneys.

Rockford, Ill.—The Rockford Wholesale Paper Company, Inc., has been incorporated with a capital of $40,000, to deal in paper products of various kinds. Registered office is at 611 Chestnut street. The principal incorporators are John and Emmett A. Sullivan.

New York, N. Y.—The Rialto Paper Corporation has been organized with a capital of $10,000, to manufacture and deal in paper products of various kinds. Samuel Silfen, 486 Brooklyn avenue, Brooklyn, N. Y., is the principal incorporator. Company is represented by Philip Kirschner, 16 Court street, Brooklyn, an attorney.

Hartford, Conn.—Benjamin Slitt, Inc., has been incorporated with capital of $50,000, by Benjamin Slitt, Hartford, and associates, to deal in wall paper and kindred products.

Dallas, Tex.—The Weaver Paper Company has been organized with a capital of $15,000, to deal in paper products of various kinds. The incorporators are Henry C. Weaver and O. S. Thomas, Jr., both of Dallas.

Bridgeport, Conn.—The Tait & Sons Paper Company, Bridgeport, has filed schedules in bankruptcy, showing liabilities of $244,936.18 and assets of $78,721.26.

New Tablet Plant to Start

[FROM OUR REGULAR CORRESPONDENT]

NEWTON FALLS, N. Y., December 17, 1932—Operations in the new plant of the McCormack Tablet Company will be started within a few days. The removal of equipment and stock from the temporary establishment in the mill of the Newton Falls Paper Company has been under way for the past several days and installation has been virtually completed. School supplies are to be manufactured on an extensive scale in the new plant.

The new establishment conforms in every respect to the latest type of mill construction and is built to provide for future expansion. It will be used exclusively by the concern for manufacturing purposes.

Wheeler Paper Corp. Expands

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., December 5, 1932.—A steady expansion of the business of the Wheeler Paper Corporation is going forward and operations are being conducted on a near capacity basis. Sales of the firm are gradually being extended westward as is evidenced by a large order shipped this week to Pacific Coast distributors. The consignment was shipped by water and consisted of over 700 cases of tissue and towels. It was among the largest shipments of paper products handled at the local terminal since it opened.

Officials declared that the shipment is the first by waterway to the Pacific Coast and that it will be followed by others. Business conditions at the plant are good and it is claimed that orders on hand will permit full time schedules with a complete personnel for some time.

1931 PAPER CENSUS

(Continued from page 13)

TABLE 3—PAPER AND PAPERBOARD—PRODUCTION, BY CLASS, KIND, QUANTITY, AND VALUE: 1931

Class	Quantity (tons, 2,000 lbs.)	Value
Paper and paper board, aggregate	9,381,850	$631,106,209
Produced for sale	6,939,706	498,202,661
Produced and transferred to other plants of same company	1,259,025	65,118,228
Produced for use in same plant	1,183,119	67,785,320
News print, standard, in rolls and in sheets	1,203,862	63,686,999
Hanging paper	85,375	5,767,483
Catalogue paper	89,389	7,064,325
Poster, novel, news-tablet, lining, etc., paper	135,924	9,624,477
Book paper, total	1,208,674	120,282,799
Machine-finished, sized, and super-calendered	952,142	94,977,883
Body stock for coated paper	199,946	18,345,062
Lithograph paper	10,036	1,081,260
Offset paper	23,454	3,146,490
Text paper	1,435	244,778
Other book paper	21,661	2,487,326
Cover paper	23,520	4,371,668
Writing paper (fine), total	487,598	77,865,416
One hundred per cent rag	11,141	6,933,661
Less than 100 per cent to 50 per cent rag	25,494	9,769,865
Less than 50 per cent rag	43,083	10,255,860
Sulphite bond	246,971	31,304,209
Other chemical wood-pulp writing paper	160,909	19,601,821
Wrapping paper, total	1,401,667	110,885,376
Unbleached sulphite wrapping	156,701	13,239,803
Bleached sulphite wrapping	28,473	3,070,984
Sulphite for bags	14,606	1,294,033
Kraft, total	867,743	58,714,568
For bags	346,629	22,480,058
Other	521,114	36,234,510
Bogus and screenings	25,701	1,151,299
Greaseproof	10,774	1,755,817
Glassine	37,666	6,684,742
Heavy (mill wrappers, etc.)	41,336	1,865,479
Rope, jute, etc.	33,850	5,443,834
Ground wood and chemical manila	29,664	2,276,119
Tag board, light manila board, and pattern	35,200	3,270,206
Other wrapping paper, including vegetable and other imitation parchment [1]	119,953	12,118,492
Tissue paper, total	394,623	45,041,174
High-grade	57,409	10,155,353
Manila and No. 2 white	44,950	5,306,032
Napkin	22,610	2,974,738
Toilet	150,652	14,319,971
Towel	53,521	4,679,913
Waxing	65,481	7,605,167
Absorbent paper, total	76,592	14,774,037
Blotting	9,565	1,775,628
Filter	972	274,845
Matrix	4,106	1,551,676
For vulcanized fiber	10,484	1,519,628
Other absorbent paper, including paper for parchmentizing [1]	51,465	9,652,260
Building paper, total	395,359	18,129,372
Sheathing paper	26,341	791,407
Felts	318,827	14,003,836
Asbestos-filled and asbestos paper	44,002	3,010,647
Other building paper	6,189	323,482
Other paper	31,451	4,500,759
Paper board, total	3,847,823	149,112,333
Container board, total	1,903,792	62,155,094
Liners—		
Kraft	495,766	18,498,067
Other liners	574,391	19,979,809
Chip (plain and test)	552,016	14,828,307
Straw (for corrugated-container use)	281,619	8,848,911
Folding box board (bending), total	905,710	37,946,800
Manila-lined (all lined boards)	604,460	24,476,622
Patent-coated	179,464	8,865,286
Other folding box board (including shell and unlined boards)	121,786	4,604,892
Set-up box board (non-bending), total	562,176	16,055,441
Chip and straw	260,833	7,192,992
News board	216,806	5,818,053
Other (including tube, egg-case filler, pasted news, and pasted chip boards)	84,537	3,044,396
Building board, total	114,054	7,524,422
Wall board	48,183	3,072,009
Insulating board	60,307	4,086,201
Other building board	5,564	366,212
Binders' board	32,703	2,177,414
Cardboard, total	74,102	8,045,898
Bristol board	36,424	4,471,381
Other cardboard	37,678	3,574,517
Leatherboard	26,715	2,581,467
Pressboard	4,000	822,828
Other board	224,571	11,802,969

[1] Not shown separately to avoid disclosing output of individual establishments.

Boston Chemists Help Germany in Famous $40,000,000 Black Tom Case

Four chemical engineers of Greater Boston helped save the German Government possible damages of $40,000,000 by their expert evidence in the famous Black Tom and Kingsland cases, which have just been decided in favor of Germany for the second time by the Mixed Claims Commission says the *Boston Evening Transcript*.

After extensive research and investigation, which involved a secret code message scrawled in invisible writing fluid on pages of a magazine and had all the elements of a thrilling spy story, they filed with the commission affidavits containing almost 60,000 words discrediting the new evidence on which Robert W. Bonynge, the American agent, sought to prove that German spies were responsible for the destruction of the Black Tom terminal in New York harbor and of an ammunition plant at Kingsland, N. J., before the United States entered the World War.

Hervey J. Skinner and Frederic C. Clark of Skinner & Sherman, Inc., chemists and engineers of this city, were the two principal expert witnesses retained by Dr. Wilhelm Tannenberg, the German agent, to examine and report on the authenticity of the new evidence, which included three letters, besides the code message in invisible writing. Roger C. Griffin and Howard J. Billings of Arthur D. Little, Inc., of Cambridge, were consulted also by the German Government and collaborated with Mr. Skinner and Mr. Clark in reaching their conclusions that the messages were fraudulent and not written in 1917 but fabricated in 1931.

Had the United States been able to prove that the destruction of the two plants was German sabotage, Germany would have been liable for many millions of dollars in damages. Because of their similarity, the two cases were treated jointly and the combined damages were the largest of any case considered by the commission.

The explosion at Black Tom, the Jersey City terminal of the Lehigh Valley Railroad, occurred July 30, 1916, killing three men, destroying $20,000,000 worth of ammunition intended for the allied armies, and shattering $1,000,000 worth of plate glass in New York city buildings. Less than six months later, Jan. 11, 1917, the munitions plant of the Canadian Car & Foundry Company, Ltd., at Kingsland, was destroyed with $15,000,000 worth of high explosive shells manufactured for Russia.

Long after the war had ended and the United States had taken steps to make Germany pay for property losses caused by sabotage in this country, the Mixed Claims Commission, which was created for the specific purpose of determining Germany's financial obligations to the United States under the Treaty of Berlin, conducted prolonged hearings on the two disasters and in November, 1930, at Hamburg, announced that it was not convinced that German agents were responsible for the Black Tom explosion and found from the evidence that the Kingsland fire was not caused by German spies.

The United States had charged that the Black Tom explosion was attributable to Frederick Hinsch, who later was head of the German military secret service in Mexico, and to Michael Kristoff, now dead. The American side also contended that the Kingsland fire was started by Theodore Wozniak, an employee of the plant, in a plot with Fred H. Herrmann and other secret agents employed by Germany to destroy munitions intended for her enemies. But the commission held that the evidence was too flimsy to place the blame on Germany.

A few months after the commission had decided against the United States, the American agent filed a petition to reopen both cases on the grounds that newly discovered evidence had come into his possession, consisting of a messag written by Herrmann and three letters written by Wozniak, linking them with Kristoff and other secret German agents in wartime sabotage in this country.

The so-called Herrmann message, written in lemon juice, invisible until heated, on the pages of a magazine published in the United States in January, 1917, purported to have been sent by Herrmann from Mexico City in April of that year to Paul Hilken, a German agent in Baltimore. Both Herrmann and Hilken had previously testified before the commission that they were involved in German sabotage activities in the United States, but the commission, in commenting on their testimony, said it appeared that they were "liars, not presumptuous, but proven."

In the message scribbled on the magazine pages there were certain four-figure numbers. By striking off the first figure and reading the numbers backwards, the code designated the corresponding page in the magazine. On the indicated pages, there were tiny pin pricks under certain letters in various words. When these letters were assembled in order they spelled the names of several persons and places. For example:

"Have seen 1755 (Eckhardt). He is suspicious of me. Can't convince him I came from 1915 (Maguerre) and 1794 (Nodolny). Have told him all reference to 2548 (Hinsch) and I, 2348 (Deutschland), 7595 (Jersey City Terminal), 3106 (Kingsland), 4526 (Savannah), and 8545 (Tony's Lab.). He doubts me on account of my bum German. . . . I don't trust 9107 (Carl Ahrendt), 3994 (Kristoff) . . . and that 4774 (Hoboken) bunch. . . . Has 2585 (Hinsch) seen 1315 (Wozniak)?"

The three Wozniak letters, offered as new proof of Germany's guilt, were written in Ukrainian and addressed to Ivan Baran of Chicago. They were dated in August and September, 1917, one from St. Louis and two from Mexico City, and purported to show that Wozniak worked with Hinsch, Herrmann and Hilken to destroy the Kingsland plant. Dr. Tannenberg maintained, however, that Wozniak was working at a lumber camp in Tupper Lake, N. Y., on the dates which appeared on the letters.

The authenticity of the Herrmann message and the Wozniak letters hinged on whether the writing was fifteen years old, or of recent origin. The American side introduced the testimony of a dozen experts who maintained that the messages could have been written in 1917 and that the pin prices could have been made in that year.

The Boston consulting chemists retained by the German agent made exhaustive tests which showed that in attempting to reproduce the lemon-juice message on the pages of a new magazine it was possible to produce the same discoloration at the edges of the pages that would appear when the test was made with an old magazine. This discoloration, they contended, was not due to the heating of the pages with an iron to bring out the invisible writing, but to the age and deterioration of the paper. In other words, they found that the magazine was several years

old when the message was written in it. The experts for the American side asserted that paper becomes more resistant to writing fluids with age and that the magazine was new when the message was written because the lemon juice had gone through some of the pages, but the Boston chemists showed that the penetration of the lemon juice in either new or old paper depended on the pressure applied to the pen and on the amount of lemon juice used.

In searching for material with which to conduct their experiments, Dr. Tannenberg went to a second-hand bookstore in New York and sought to buy all the 1917 numbers of the magazine which contained the Herrmann message. He obtained and turned over to Mr. Skinner and Mr. Clark all except the January issue, and the proprietor told him his only copy for that month had been purchased only a few months before by a man whom he did not know.

On examining the magazines, Mr. Skinner and Mr. Clark were astonished to discover plus and minus signs and vertical pencil marks in the margin of the page containing the index of contents in each magazine identical with marks found in the magazine which contained the Herrmann message. Through a bill of sale found between the pages of one of the magazines they were traced to a Brooklyn man, who reported that he had sold them to the bookshop in the fall of 1930. He explained that the marks against the table of contents were made by him and by his brother to indicate the stories they had read. When he finished a story he would draw a short horizontal line against the title, while his brother would use a vertical line. When both had read the same story the result would be a plus sign in the margin beside the title.

In regard to the Wozniak letters, the Boston chemists testified that the paper on which they were written had been artificially stained to give them the appearance of age. They traced the paper to a manufacturer in Warsaw, Poland, from whom a representative of the German agent obtained samples with which tests were made by the chemists. One of the Wozniak letters bore a picture of a lion as a watermark, and an affidavit was made by the designer that the paper on which the watermark appeared was not manufactured until 1926, although the Wozniak letter written on it was dated in the summer of 1917.

Associate Justice Owen J. Roberts of the United States Supreme Court, in handing down his decision as umpire of the Mixed Claims Commission a few days ago, upheld the findings of the Boston chemical engineers when he declared that he was definitely able to conclude "that the Wozniak letters were fraudulent, prepared recently and not authentic and that the German messages introduced in evidence do not advance the American case." E.B.S.

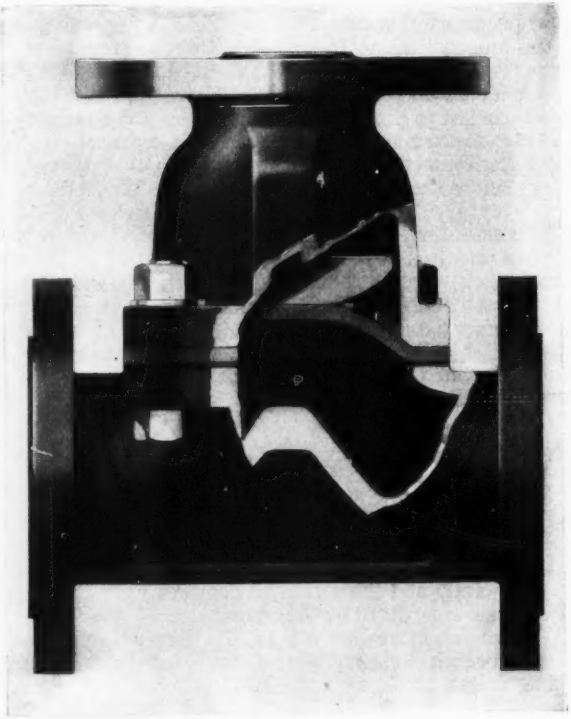
Bag Paper Cargo for Fort Edward

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., December 19, 1932—Two consignments of finished bag paper are being unloaded at the terminal here this week and are being conveyed by trucks to the mills of the Union Bag and Paper Company. As long as navigation conditions remain favorable it is the intention of the company to use the barge canal in transporting its products and other shipments are scheduled to follow. Several vessels carrying several thousand tons of wood pulp are scheduled to arrive from Sweden at the Port of Albany late this month and officials are expected to be on hand to make arrangements for sending the imported product to the mills at Hudson Falls. The consignments are being sent with the provision that the vessels will be permitted to dispose of their cargoes at another port if weather conditions will not allow passage up the river.

Hills-McCanna Valves

The principle of the Saunders Patent Valve, manufactured by the Hills-McCanna Company, of 2349-2359 Nelson street, Chicago, Ill., was developed several years ago in the South African Mining Fields to eliminate losses due to air valve leakage. The success in this field brought it into general use. Large numbers of these valves are used in general manufacturing industries. Constant research and tests are increasing its uses. The valve is recommended for handling acids, alkalis, petroleum and vegetable oils, chlorine solutions, alcohol, gases, compressed air, hot or cold water and liquids having solids in suspension.



SAUNDERS PATENT VALVE

No stuffing box is required. The liquids handled cannot reach the bonnet or working parts, which assures a free operating valve under all conditions. This valve eliminates leaks caused by wire drawing and scale or other foreign particles settling on the seats. The rising stem is totally enclosed, preventing breakage and possible distortion. When valves are made for special services, it is necessary to make only the body of special materials. This feature makes it possible to provide corrosion-resisting alloy and lined valves at low prices. The construction and design are such that the valve will last for an indefinite period.

John A. Harlow Dead

[FROM OUR REGULAR CORRESPONDENT]

OLD TOWN, Me., December 14, 1932—John A. Harlow, aged 52, superintendent of the sulphite pulp mill of the Penobscot Chemical Fibre Company since its erection in 1915, died suddenly at his home here today. He was graduated from Bowdoin College in 1903. His widow and three children survive.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 17, 1932

CIGARETTE PAPER

American Tobacco Co., Amer. Importer, Havre, 100 cs.; Champagne Paper Corp., Lafayette, Havre, 139 cs.; American Tobacco Co., Lafayette, Havre, 501 cs.; D. E. Bordner, Deutschland, Hamburg, 2 cs.; American Tobacco Co., Pr. Harding, Havre, 50 cs.; ——, Conte Grande, Genoa, 5 cs.

WALL PAPER

Davies Turner & Co., Schodack, Havre, 1 cs.; J. E. Bernard & Co., Este, Bremen, 2 bls.; W. H. S. Lloyd & Co., Veendam, Rotterdam, 1 cs.; Globe Shipping Co., Deutschland, Hamburg, 10 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., Amer. Farmer, London, 1 bl., 1 cs.; F. Hirschfield & Son, Inc., Este, Bremen, 2 cs.

NEWS PRINT

W. H. Bell, Markland, Liverpool, 4711 rolls; Perkins Goodwin & Co., Este, Bremen, 65 rolls; Jay Madden Corp., Este, Bremen, 220 rolls; Jay Madden Corp., Scanpenn, Kotka, 461 rolls; ——, Scanpenn, Kotka, 420 rolls; ——, Tonsbergfjord, Oslo, 196 rolls, 152 bls.; Perkins Goodwin & Co., Deutschland, Hamburg, 86 rolls; Perkins Goodwin & Co., Pr. Harding, Hamburg, 403 rolls.

PRINTING PAPER

C. Steiner, Este, Bremen, 9 cs.; S. Dietzgen & Co., Veendam, Rotterdam, 44 cs.; Schencker & Co., Veendam, Rotterdam, 1 cs.; Keuffel & Esser Co., Singapore Maru, Hamburg, 9 cs.; Richard Shipping Co., Deutschland, Hamburg,, 3 cs.

WRAPPING PAPER

Japan Paper Co., Westernland, Antwerp, 1 cs.; D. E. Bordner, Deutschland, Hamburg, 2 bls.; C. Steiner, Deutschland, Hamburg, 32 cs.

PARCHMENT PAPER

F. C. Strype, Westernland, Antwerp, 11 cs.

COLORED PAPER

S. Gilbert, Bremen, Bremen, 2 cs.; F. Murray Hill Co., Pr. Harding, Hamburg, 1 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., Amer. Farmer, London, 4 cs.; J. Manheimer, Berengaria, Southampton, 140 bls., 3 cs.; A. Giese & Son, Aurania, Southampton, 34 bls.

DRAWING PAPER

Keuffel & Esser Co., Aurania, Southampton, 2 cs.; Keuffel & Esser Co., Singapore Maru, Hamburg, 55 rolls, 12 cs.; Phoenix Shipping Co., Deutschland, Hamburg, 16 cs.; Andersen Meyer & Co., Pr. Jackson, Shanghai, 1 cs.

BRISTOL BOARDS

Keuffel & Esser Co., Aurania, Southampton, 2 cs.

WRITING PAPER

D. E. Bordner, Deutschland, Hamburg, 1 cs.

BARYTA COATED PAPER

Globe Shipping Co., Este, Bremen, 72 cs.; Int'l Forwarding Co., Deutschland, Hamburg, 9 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Westernland, Antwerp, 45 cs.

METAL COATED PAPER

Globe Shipping Co., Bremen, Bremen, 36 cs.; K. Pauli Co., Deutschland, Hamburg, 1 cs.

COATED PAPER

Happel & McAvoy, Deutschland, Hamburg, 14 cs.

BASIC PAPER

Globe Shipping Co., Este, Bremen, 18 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Britannic, Liverpool, 1 cs. (duplex); L. A. Consmiller, Bremen, Bremen, 5 cs.; Sellers Transportation Co., Bremen, Bremen, 9 cs.; Sellers Transportation Co., Deutschland, Hamburg, 3 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., Britannic, Liverpool, 2 cs.; Jay Madden Corp., Scanpenn, Helsingfors, 1 bl., 3 cs.; W. J. Byrnes, Aurania, Southampton, 2 cs.; P. J. Schweitzer, Excambion, Marseilles, 30 cs.

STENCIL PAPER

Frankel Carbon & Ribbon Manfg. Co., Berengaria, Southampton, 1 cs.; Frankel Carbon & Ribbon Manfg. Co., Amer. Farmer, London, 1 cs.; Massce & Co., Amer. Farmer, London, 1 cs.

TRANSFER PAPER

Rohner Gehrig & Co., Bremen, Bremen, 10 cs.; Atlantic F'd'g Co., Deutschland, Hamburg, 16 cs.

RAW CARD

F. C. Strype, Bremen, Bremen, 12 cs.

TEMPLATE PAPER

J. E. Bernard & Co., Aurania, Southampton, 2 cs.

WOOD PULP PAPER

Beckhard Simfred Co., Veendam, Rotterdam, 14 cs.

IVORY BOARD

Safran & Glucksman, Veendam, Rotterdam, 6 bls.

GUMMED PAPER

Heemsoth Basse & Co., Este, Bremen, 6 cs.; Heemsoth Basse & Co., Bremen, Bremen, 2 cs.

NOTE BOOKS

Keuffel & Esser Co., Amer. Importer, Hamburg, 3 cs.

PASTE BOARD

——, Amer. Importer, Hamburg, 19 cs.; Coy Disbrow & Co., Veendam, Rotterdam, 1 ble.

CARD BOARD

Coty Processing Co., Lafayette, Havre, 9 cs.; American Express Co., Pr. Harding, Hamburg, 132 cs.

STRAW BOARD

Massa Paper Corp., Veendam, Rotterdam, 480 pkgs.

MISCELLANEOUS PAPER

C. Steiner, Veendam, Rotterdam, 12 rolls, 8 cs.; ——, Singapore Maru, Hamburg, 36 rolls; G. W. Sheldon & Co., Lafayette, Havre, 58 cs.; Corn Exchange Bank Trust Co., Sanyo Maru, Osaka, 9 cs.; Wedeman Godknecht & Lally, Deutschland, Hamburg, 13 cs.; Astoria Press, Deutschland, Hamburg, 14 bls.; ——, Deutschland, Hamburg, 5 cs.; Japan Paper Co., Pr. Jackson, Kobe, 15 cs.

RAGS, BAGGINGS, ETC.

D. M. Hicks Inc., Westernland, Antwerp, 38 bls. dry paste; ——, Amer. Importer, 106 bls. rags; ——, E. Francqui, Antwerp, 60 bls. rags; T. D. Downing & Co., Cameronia, Glasgow, 105 bls. bagging, 110 bls. paper stock; Amtorg Trading Co., Scanpenn, Leningrad, 93 bls. rags; ——, Aurania, Southampton, 69 bls. waste paper; ——, Aurania, Southampton, 8 bls. rags; Banco Coml Italiane Trust Co., Singapore Maru, Hamburg, 81 bls. rags.

GLUE STOCK

——, Este, Bremen, 60 bags hide glue; ——, Deutschland, Hamburg, 50 bags hide glue; ——, Deutschland, Hamburg, 100 bags bone glue.

OLD ROPE

National City Bank, Amer. Farmer, London, 102 coils; ——, Aurania, Southampton, 61 rolls; G. W. Millar & Co. Inc., Francisco, Hull, 48 coils; Banco Coml Italiane Trust Co., Pr. Harding, Hamburg, 30 coils.

WOOD PULP

Irving Trust Co., Este, Bremen, 250 bls. wood pulp; ——, Amer. Importer, Hamburg, 364 bls. wood pulp, 56 tons; Lagerloef Trading Co., Scanpenn, Helsingfors, 878 bls. sulphite, 156 tons; Castle & Overton, Inc., Scanpenn, Wiborg, 1274 bls. wood pulp, 256 tons; ——, Scanpenn, Kotka, 322 bls. sulphite, 54 tons; Lagerloef Trading Co., Scanpenn, Kotka, 127 bls. mechanical pulp, 25 tons; Castle & Overton, Inc., Veendam, Rotterdam, 300 bls. wood pulp; J. Andersen & Co., Tonsbergfjord, Oslo, 150 bls. sulphite; E. M. Sergeant & Co., Tonsbergfjord, Oslo, 600 bls. chemical pulp; Irving Trust Co., Tonsbergfjord, Oslo, 1000 bls. wood pulp; Castle & Overton, Inc., Deutschland, Hamburg, 1020 bls. wood pulp, 200 tons; ——, Pr. Harding, Hamburg, 164 bls. wood pulp, 56 tons; Bulkley Dunton & Co., Albert Ballin, ——, 125 bls. wood pulp.

WOOD PULP BOARDS

Johaneson Wales & Sparre, Inc., Este, Bremen, 490 rolls.

BOSTON IMPORTS

WEEK ENDING DECEMBER 17, 1932

G. F. Malcolm & Co., Britannic, Liverpool, 3 cs. tissue paper; ——, Britannic, Liverpool, 10 bls. rags; Bulkley Dunton & Co., City of Boston, ——, 500 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 17, 1932

Bulkley Dunton & Co., City of Baltimore, ——, 2570 bls. wood pulp; Bulkley Dunton & Co., Pilot, ——, 1000 bls. wood pulp; Bulkley Dunton & Co., Greisheim, ——, 825 bls. wood pulp.

Otten Bros. Co. Awarded Patent

Otten Brothers Company, of 7356 Richmond Avenue, Detroit, Mich., announces that the United States Patent Office has allowed them on November 29, 1932, Patent No. 1,889,621 on their Round Corner Cards.

Paperboard Industries Elect

The annual meeting of the Paperboard Industries Association was held at the Commodore Hotel, New York City, Thursday morning, November 17, 1932. At this meeting and at the Group Meetings held on the 16th, the following officers were elected for the ensuing year.

President and Chairman of Executive Committee: George R. Browder, 608 South Dearborn St., Chicago, Ill.

Vice-President—Paperboard Group: Wesley M. Dixon, Container Corporation of America, Chicago, Ill.

Vice-President—Container Group: M. M. Madison, C. F. Downey Box Company, No. Kansas City, Mo.

Chairman—Folding Box Group: John L. Barchard, Hummel & Downing Company, Milwaukee, Wis.

In addition to the president, who was elected by the general membership, and the Vice-Presidents elected by the individual groups, each of whom was elected a member of the Executive Committee, the following were also elected as Members of the Executive Committee.

Representing the Paperboard Group: James A. Downs, MacAndrews & Forbes Company, New York, N. Y.; Henry D. Schmidt, Schmidt & Ault Paper Company, York, Pa.

Representing the Container Group: R. H. Dollison, Fairmont Box Company, Fairmont, W. Va.; James B. Fenton, The Hinde & Dauch Paper Company, Buffalo, N. Y.

Representing the Folding Box Group: E. V. Donaldson, Robert Gair Company, Inc., New York, N. Y.; W. G. Latham, Fort Orange Paper Company, Castleton on Hudson, N. Y.

Representing the Container-Board Group: G. G. Otto, Alton Box Board and Paper Company, Alton, Ill.; R. H. Bursch, Robert Gair Company, Inc., New York, N. Y.

F. A. Clark Joins Regal Paper Co.

PULASKI, N. Y., December 10, 1932—Officials of the Regal Paper Company announced this week that Fred A. Clark, prominent business man of this city, had become associated with the concern in a responsible capacity. He is a former official of the Pulaski National Bank and will be connected with the office department of the local company in his new position. He has been identified with the business life here for many years and is well qualified to take over his new duties.

Japanese Paper Production

WASHINGTON, D. C., December 14, 1932—The Japanese Paper Manufacturers' Association reports production by its member mills at 55,416 short tons during the month of September, bringing the total for the first nine months of this year up to 487,125 tons, compared with 502,182 tons during the corresponding nine months of last year. Sales up to September 30 totaled 498,044 tons, an increase of 10,050 tons over last year.

Wood Fibre Plug Plant to Resume

Suspension of operations for six months by the Wood Fibre Plug Company, Menasha, Wis., makers of paper roll plugs, will be terminated with the resumption of activities before Christmas, officials have announced. Enough orders have been booked to operate on a full time schedule of 24 hours per day throughout the winter and spring. The plant was being put in shape last week so operations could commence. Nineteen men will be employed at the start.

WOOD PULP
AGENTS

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Asten Asbestos
DRYER FELTS
PATENTED

Cut your Dryer Felt Costs

—by using Asten Asbestos Felts. They not only last from 3 to 6 times longer than other felts, but have additional features that make them economical.

We will gladly send you copies of Certified Performance Surveys that tell what other mills have saved by using Asten Asbestos Felts.

Made in U. S. A.

ASTEN-HILL
Manufacturing Company
PHILADELPHIA

XCEM No. 70 SLIME REMOVER

This compound's extraordinary effectiveness in removing slime deposits, has made it the preferred choice of an ever-increasing number of mill superintendents.

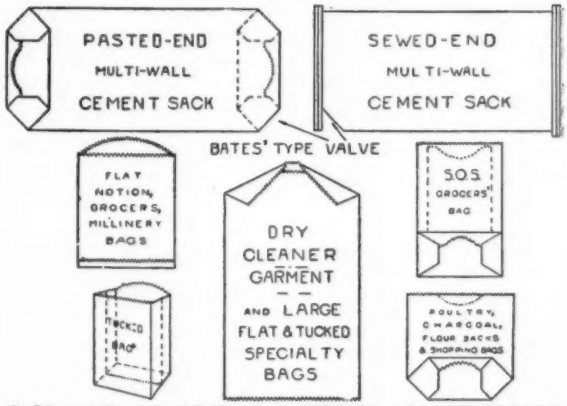
A folder which we have recently issued contains detailed instructions regarding the use of this compound. These instructions cover each unit of the paper making system.

A copy of this folder is yours for the asking.

MAGNUSON PRODUCTS CORP.
Third and Hoyt Streets Brooklyn, N. Y.

Warehouses in Principal Cities Representatives Everywhere
IN THE UNITED STATES and CANADA

POTDEVIN
OVER 60 MODELS OF PAPER BAG
MACHINERY
FOR PLAIN OR PRINTED


PASTED-END MULTI-WALL CEMENT SACK
SEWED-END MULTI-WALL CEMENT SACK
BATES' TYPE VALVE
FLAT NOTION, GROCERS, MILLINERY BAGS
DRY CLEANER GARMENT — AND LARGE FLAT & TUCKED SPECIALTY BAGS
SOS GROCERS' BAG
POULTRY, CHARCOAL, FLOUR SACKS & SHOPPING BAGS

ALSO MULTI-COLOR PRINTING PRESSES — COMPENSATORS — BOTTOMERS — GLUING — PASTING — PAPER WAXING MACHINERY, ETC.

POTDEVIN MACHINE CO.
1223 38TH STREET BROOKLYN, N. Y. U. S. A.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, December 21, 1932.

Demand for the various standard grades of paper was listless during the past week. Orders were very scarce, due mainly to the cutting down of inventories. Sales forces have been recalled from the road and are busy planning next season's campaign. The price situation is irregular.

The news print market is practically unchanged. According to information gathered by the News Print Service Bureau, the total North American production during November amounted to 265,035 tons. Shipments from the United States and Canada amounted to 248,249 tons.

Quietness prevailed in the paper board market. Box board production is being maintained at approximately 50 per cent of capacity. Prices are fairly steady. Orders for the various grades of fine paper and tissues are falling off. There is little, if any, improvement in the coarse paper market.

Mechanical Pulp

The position of the ground wood pulp market is sound. Production of both domestic and imported mechanical pulp is being keyed to consumption, and accumulations are not excessive. Inquiries for future account are fairly numerous. Prices are generally holding to previously quoted levels.

Chemical Pulp

Conditions in the chemical pulp market are fairly satisfactory. There are a few inquiries around for future requirements, some of which should materialize into good orders. Contract shipments are proceeding regularly. Prices are generally steadier since the recently announced revisions.

Old Rope and Bagging

No radical changes were reported in the old rope market. Paper mill demand for both domestic and foreign manila rope continues light. Small mixed rope is dull. Old rope prices are spotty. The bagging market is marking time. Gunny and scrap bagging are moving slowly. Roofing bagging is fairly active.

Rags

The domestic rag market is in the doldrums. Mill interest in the various grades of cotton cuttings is lacking and little improvement is anticipated until after the inventory period. Roofing rags are slightly easier. The imported rag market continues neglected. Prices are nominal.

Waste Paper

Paper mill demand for the better grades of paper stock is fairly persistent. White envelope cuttings are quite firm, with offerings decidedly scarce. Board mill demand for the lower grades of waste paper has fallen off, for the time being, influenced by the approach of the inventory period. Prices are easier.

Twine

With most of the holiday business already booked, demand for the various grades of twine during the past week was routine. The opinion is expressed that little new business will be transacted until after the turn of the year, when trading should revive materially. Prices remain unchanged.

A. H. Chamberlain Discusses Mill Problems

Arthur H. Chamberlain, executive secretary of the National Paper Trade Association of the United States, was the guest speaker at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, held at the Hotel Roosevelt, New York, on Monday last.

Mr. Chamberlain was greeted by the largest attendance of the season. He discussed in a sympathetic and informative manner the relations between the paper merchant and the manufacturer and reviewed the efforts of his association to improve those relations. He expressed the view that the relations between the mills and the merchants should be even closer in the future than at present.

Mr. Chamberlain also stressed the importance of improving the methods of distribution and promoting marketing. He emphasized the great value of Trade Customs, declaring that their enforcement was beneficial from the merchants point of view and deprecating any attempt to break them down.

Following the usual holiday recess, the next luncheon and meeting of the Eastern Division of the Salesmen's Association will be held at the Hotel Roosevelt, New York, on Monday, January 9.

Aldine Paper Co. Adds Lines

The Aldine Paper Company, 333 Hudson street, New York, N. Y., has been appointed a distributor for the following lines of bonds, ledger and index of the Collins Manufacturing Company: Yoeman Ledger, Arkwright Ledger, Eminent Ledger, Record Index, Permanent Index, Collins' Bond, Equipment Bond, King Arthur Bond, Active and Brighton Bond. This group consists of practically every standard mill brand line manufactured by the Collins mill. These grades are well established, having been manufactured for a period of many years.

The Collins Manufacturing Company is one of the finest rag paper manufacturers, and enjoys an enviable reputation for high grade papers that are priced economically.

H. E. Gould, president of the Aldine Paper Company is very much enthused over these new lines and predicts a nice volume of business. These standard mill brand papers fit in with the Aldine policy of carrying only standard mill brand well advertised lines.

The Aldine Paper Company was recently appointed a distributor for Waterfalls Bond, Ledger, etc., also, and intends to add several additional salesmen to its staff to help promote these new lines.

Sulphur

A FIRST REQUISITE

in

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
75 E. 45th Street New York City
Mines: Gulf, Newgulf and Long Point, Texas

1864 1932

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
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Your Card in This Space
Will Bring Results

"YOUR PAPER IS MADE IN YOUR BEATERS"

Dilts
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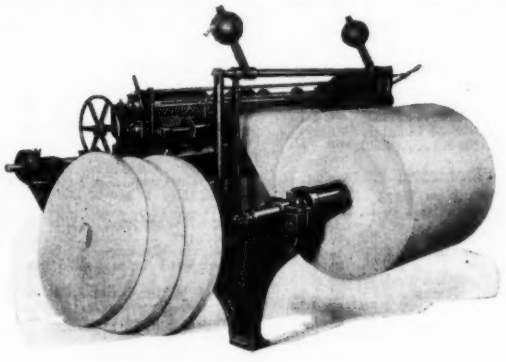
Appleton
Felts and Jackets
Appleton Woolen Mills, Appleton, Wisconsin



HEAVY DUTY SLITTER and REWINDER

Designed to meet the requirements of all users of Automatic Machines that take the stock from the roll, and require a roll of large diameter wound true and solid.

With this slitter, wide and narrow widths cut at the same time are of uniform tension. A roll slit and rewound 1" wide and 48" diameter can be handled without danger of spinning. At very little additional cost per ton paper mills equipped with this Slitter can furnish their customers with paper or board slit and rewound from 1" width and up. Made in three widths: 48"—60"—72".

INMAN MANUFACTURING COMPANY
AMSTERDAM, N. Y.

Manufacturers of
AUTOMATIC MACHINERY FOR PAPER BOXES AND ROTARY PAPER CUTTING MACHINERY

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, December 21, 1932.

BLANC FIXE.—The blanc fixe market is moderately active. Prices are generally holding to formerly quoted levels. The pulp is offered at from $42.50 to $45.00 per ton, in bulk; and the powder at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder is light at present. The contract movement is mainly seasonal. Prices are holding to schedule, in most instances. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues firm. Domestic standard ground is still quoted at 7 cents and finely ground at 8 cents per pound. Argentitne standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Trading in the caustic soda market is fairly active. Prices remain unchanged. Solid caustic soda is quoted at from $2.55 to $2.60; while the flake and the ground are selling at from $2.95 to $3.00 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is marking time. Shipments against contract are going forward in fair volume. Imported china clay is quoted at from $10 to $15 per ton, ship side. Domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Steadiness prevails in the chlorine market. Contract shipments are moving with fair regularity. Prices remain unchanged. Chlorine is quoted at from $1.55 to $1.65 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly firmer. The grades of gum rosin used in the paper mills are now quoted at from $3.65 to $3.85 per 280 pounds, in barrels, at works. Wood rosin is selling at $2.60 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Conditions in the salt cake market are fairly satisfactory. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works; while imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market is rather quiet. Prices are generally holding to schedule, however, and the outlook is fairly bright. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.30; and in barrels, $1.43.

STARCH.—Business in the starch market is fairly active. Supplies are moving into consumption freely. Prices remain unchanged. Special paper making starch is quoted at $2.19 per 100 pounds, in bags; and at $2.46 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Paper mill demand for sulphate of alumina is fairly persistent. Prices remain unaltered. Commercial grades are quoted at from $1.25 to $1.46; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the past week was along routine lines. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	4.50	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	5.25	@	—
M. F.	3.75	@	5.00
Coated and Enamel	6.25	@	9.75
Lithograph	6.75	@	11.25
Tissues—Per Ream—			
White No. 1	.50	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.55	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09½	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¼	@	—

(Delivered New York)

News, per ton—			
Roll, contract	45.00	@	—
Rolls, spot	45.00	@	—
Sheets	50.00	@	—
Side Runs	30.00	@	35.00
Kraft—			
No. 1 Domestic	4.50	@	4.75
No. 2 Domestic	2.37½	@	2.75
Southern	2.25	@	2.50
Imported	2.75	@	3.50
Boards—per ton—			
News	30.00	@	32.50
Straw	29.50	@	31.50
Chip	24.50	@	30.00
Binders' Boards	62.00	@	70.00
Kraft Liner	40.00	@	45.00
Standard 85 Test Jute Liner	27.00	@	29.50
Sgl. Mla. Ll. Chip	37.50	@	40.00

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	16.00	@	18.00
Dry	17.00	@	20.00

(F. o. b. Mill)

No. 1 Domestic	16.00	@	22.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	1.80	@	2.25
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.35	@	1.60
Mitscherlich unbleached	1.55	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.25	@	1.40
No. 2 Kraft	1.10	@	1.15
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	1.75	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.40	@	1.65
Mitscherlich unbleached	2.00	@	2.55
Kraft (Domestic)	1.25	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.00	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	4.00	@	4.25
New White, No. 2	3.00	@	3.25
Silesias No. 1	3.75	@	4.00
New Unbleached	5.50	@	6.00
New Soft Blacks	2.75	@	3.00
Blue Overall	3.00	@	3.50
Fancy	1.50	@	1.75
Washables	1.15	@	1.40
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.00	@	3.25
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@	1.50
New Mixed Cuttings	1.60	@	1.75
New Light Silesias	3.00	@	3.25
Light Flannelettes	2.50	@	2.75
Unbleached Cuttings	4.75	@	5.25
New White Cuttings	4.00	@	4.25
New Light Oxfords	3.00	@	3.25
New Light Prints	1.85	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	3.50	@	3.75
No. 2 White Cotton	2.75	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.80	@	2.00
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.80	@	1.90
German Blue Linens	1.70	@	1.80
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	.90	@	1.00
Domestic	1.00	@	1.10
Wool Tares, light	.70	@	.80
Wool Tares, heavy	.70	@	.80
Bright Bagging	.70	@	.75
Small Mixed Rope	.59	@	.60
Manila Rope—			
Foreign	1.35	@	1.40
Domestic	1.40	@	1.50
New Burlap Cut	1.00	@	1.50
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	1.70	@	1.80
Ordinary Hard White No. 1	1.55	@	1.65
Hard White No. 2	1.30	@	1.40
Soft White No. 1	1.40	@	1.50
Flat Stock—			
Stitchless	.55	@	.65
Overissue Mag	.55	@	.65
Solid Flat Book	.50	@	.55
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.75
Ledger Stock	.45	@	.55
New B. B. Chips	.20	@	.25
Manilas—			
New Env. Cut	1.25	@	1.35
New Cuttings	1.00	@	1.05
Extra No. 1 old	.80	@	.90
Print	.35	@	.40
Bogus Wrapper	.30	@	.35
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.75	@	.85
News—			
No. 1 White News	1.00	@	1.05
Strictly Overissue	.50	@	.55
Strictly Folded	.35	@	.40
No. 1 Mixed Paper	.17½	@	.22½

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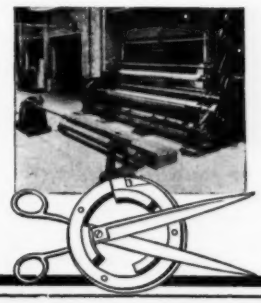

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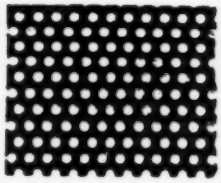

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.10¾	@	.10¾
Fine Tube Rope—			
4-ply	.12¼	@	.12¾
3-ply	.13¼	@	.13¾
2-ply	.14¼	@	.14¾
Paper Makers Twine			
Balls	.09¼	@	.11¼
Box Twine, 2-3 ply	.11¼	@	.12¾
Jute Rope	.09	@	.10
White Hemp	.12¼	@	.12¾
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	45.00	@	—
Sheets	50.00	@	—
Boards, per ton—			
Plain Chip	27.50	@	—
Solid News	30.00	@	—
Manila Lined Chip	37.50	@	—
Patent coated	47.50	@	—
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.45	@	.55
Solid Books	.25	@	.30
Blanks	1.00	@	1.05
Kraffts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.35
Overissue News	.30	@	.35
Old Newspapers—			
No. 1	.25	@	.30
Mixed Papers—			
No. 1	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.02¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	46.00	@	—
Straw Board	32.00	@	—
News Board	30.00	@	—
Chip Board	30.00	@	—
Wood Pulp Board	70.00	@	80.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.03½	@	.04
New White, No. 2.	.02½	@	.03
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft.	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.60	@	1.70
No. 2 Hard White	1.50	@	1.60
No. 1 Soft White	1.40	@	1.45
No. 2 Soft White	1.10	@	1.15
No. 1 Mixed	.50	@	.60
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.65	@	.70
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.10	@	1.15
No. 1 Old Manila	.60	@	.65
Print Manila	.40	@	.45
Container Manila	.35	@	.40
Old Kraft	.85	@	.90
Common Paper	.20	@	.25
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.25	@	.30
Binders Board, Chip	.25	@	.30
Corrugated Board	.35	@	.45
Overissue News	.45	@	.55
Old Newspaper	.30	@	.35

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	—	@	.04¾
No. 2 Kraft	—	@	.02¾
(F. o. b. Boston)			
Southern Kraft	—	@	.02½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	44.50	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@40.00	
Filled News Board	—	@30.00	
Chip Board	27.50	@	—
Chip Board (Creasing)	27.50	@30.00	
Single Manila Lined Chip	—	@37.50	
Single White, Patent Coated News Board—			
Bender	45.00	@55.00	
Wood Pulp Board	70.00	@75.00	
Binder Boards	62.00	@75.00	

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	1.50	@	1.65
No. 1 Old Manila	.50	@	.60
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.55	@	.65
White Blank News	.80	@	.85
No. 1 Kraft	.70	@	.95
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.30	@	.35
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.20	@	.25
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.75	@	—
Manila Rope—			
Foreign	1.25	@	1.45
Domestic	—	@	1.60
Transmission Rope	—	@	.90
Mixing String	—	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.60	@	1.00
No. 1 Scrap Burlap	.75	@	.80
Scrap Sisal	.90	@	—
Scrap Sisal for shredding	—	@	.90
Wool Tares, heavy	.65	@	.75
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	2.00	@	—
Heavy Baling Bagging	.90	@	1.10
Paper Mill Bagging	.50	@	.60
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.75	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.03¾	@	.04
New White No. 2	.02¾	@	.03¼
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.02¾
New Unbleached	.05	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.35	@	.40
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.50	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.75
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 4 M. F. (carloads)	5.25	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	2.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—
(F.O.B. Cars Toronto)			
News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

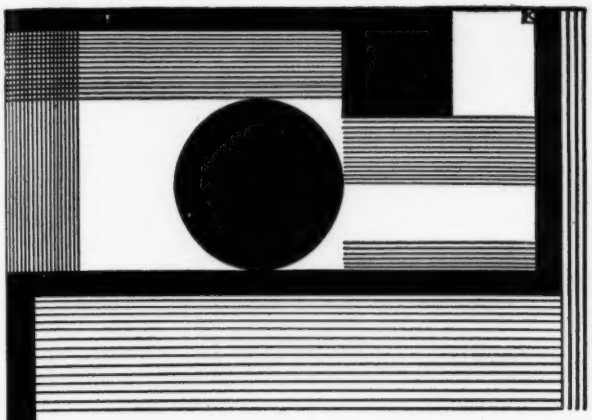
Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼



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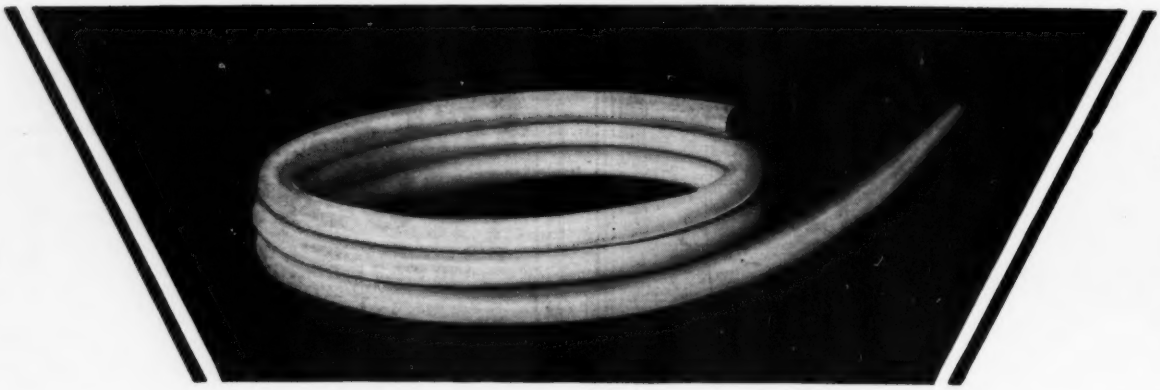

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